

=> file registry

FILE 'REGISTRY' ENTERED AT 16:12:15 ON 26 APR 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 25 APR 2006 HIGHEST RN 881879-55-6

DICTIONARY FILE UPDATES: 25 APR 2006 HIGHEST RN 881879-55-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d ide L3

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2006 ACS on STN

RN 7440-21-3 REGISTRY

ED Entered STN: 16 Nov 1984

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN CZ-N Polished wafer

CN GKO 3516A

CN Hexsil

CN HGH 600

CN KDB 10

CN KDB 20

CN KR 1

CN Metasilicon 325A

CN Polysilicon

CN SI 1059

CN Sicomill 4C-P

CN Sicomill Grade 2

CN SIE 17PB

CN Silgrain Standard

CN Silicon element

CN SILSO
DR 17375-03-0, 72516-01-9, 72516-02-0, 72516-03-1, 71536-23-7, 152284-21-4,
90337-93-2, 157383-37-4, 160371-18-6
MF Si
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOSIS, BIOTECHNO, CA, CABA,
CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN,
CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE,
ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT,
IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT,
RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Si

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

436311 REFERENCES IN FILE CA (1907 TO DATE)
8914 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
436939 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> => => file casreact

FILE 'CASREACT' ENTERED AT 17:48:30 ON 27 APR 2006
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE CONTENT:1840 - 23 Apr 2006 VOL 144 ISS 17

New CAS Information Use Policies, enter HELP USAGETERMS for details.

*
* CASREACT now has more than 10 million reactions *
*

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d stat que L22

L10 164220 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND (F>0 OR CL>0 OR
BR>0)
L11 63332 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND F>0
L13 42881 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND CASREACT/LC

L14 13948 SEA FILE=REGISTRY ABB=ON PLU=ON L13 AND L11
L19 88 SEA FILE=CASREACT ABB=ON PLU=ON 7440-21-3/RRT
L20 4697 SEA FILE=CASREACT ABB=ON PLU=ON L14/PRO
L22 0 SEA FILE=CASREACT ABB=ON PLU=ON L19 (L) L20

=> d stat que L23

L10 164220 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND (F>0 OR CL>0 OR
BR>0)
L11 63332 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND F>0
L13 42881 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND CASREACT/LC
L14 13948 SEA FILE=REGISTRY ABB=ON PLU=ON L13 AND L11
L15 28933 SEA FILE=REGISTRY ABB=ON PLU=ON L13 NOT L14
L19 88 SEA FILE=CASREACT ABB=ON PLU=ON 7440-21-3/RRT
L21 10750 SEA FILE=CASREACT ABB=ON PLU=ON L15/PRO
L23 46 SEA FILE=CASREACT ABB=ON PLU=ON L19 (L) L21

=> s L22 or L23

L74 46 L22 OR L23

=> file caplus

FILE 'CAPLUS' ENTERED AT 17:49:33 ON 27 APR 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 27 Apr 2006 VOL 144 ISS 18
FILE LAST UPDATED: 26 Apr 2006 (20060426/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d stat que L27

L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON SILICON/CN
L10 164220 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND (F>0 OR CL>0 OR
BR>0)
L16 17965 SEA FILE=CAPLUS ABB=ON PLU=ON L2 (L) (RGT OR RCT OR RACT)/RL
L17 53505 SEA FILE=CAPLUS ABB=ON PLU=ON L10/PREP
L18 462 SEA FILE=CAPLUS ABB=ON PLU=ON L16 AND L17
L24 110513 SEA FILE=CAPLUS ABB=ON PLU=ON ?MICROWAV?/BI
L25 35 SEA FILE=CAPLUS ABB=ON PLU=ON M/OBI(1W)WAVE/BI
L27 5 SEA FILE=CAPLUS ABB=ON PLU=ON L18 AND (L24 OR L25)

=> d stat que L63
L3 STR
Si 1

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE

L4 395584 SEA FILE=REGISTRY FAM FUL L3
L10 164220 SEA FILE=REGISTRY ABB=ON PLU=ON SI>0 AND (F>0 OR CL>0 OR
BR>0)
L17 53505 SEA FILE=CAPLUS ABB=ON PLU=ON L10/PREP
L24 110513 SEA FILE=CAPLUS ABB=ON PLU=ON ?MICROWAV?/BI
L25 35 SEA FILE=CAPLUS ABB=ON PLU=ON M/OBI(1W)WAVE/BI
L55 394172 SEA FILE=REGISTRY ABB=ON PLU=ON L4 AND CAPLUS/LC
L59 369838 SEA FILE=REGISTRY ABB=ON PLU=ON L55 AND AYS/CI
L60 24334 SEA FILE=REGISTRY ABB=ON PLU=ON L55 NOT L59
L61 28637 SEA FILE=CAPLUS ABB=ON PLU=ON L60 (L) (RGT OR RCT OR
RACT)/RL
L62 665 SEA FILE=CAPLUS ABB=ON PLU=ON L61 AND L17
L63 7 SEA FILE=CAPLUS ABB=ON PLU=ON L62 AND (L24 OR L25)

=> s L27 or L63
L75 7 L27 OR L63

=> d ibib abs hit L74 1-46; d ibib abs hitind hitstr L75 1-7
YOU HAVE REQUESTED DATA FROM FILE 'CASREACT' - CONTINUE? (Y)/N:y

L74 ANSWER 1 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 142:482091 CASREACT

TITLE: Direct Reaction of Silicon with α - ω
Dichloroalkanes: Direct Formation of
Dichlorosilacyclopentane

AUTHOR(S): Lewis, Larry N.; Whitney, John M.; Bui, Pierre

CORPORATE SOURCE: GE Global Research Center, Niskayuna, NY, 12309, USA

SOURCE: Organometallics (2005), 24(9), 2141-2146
CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

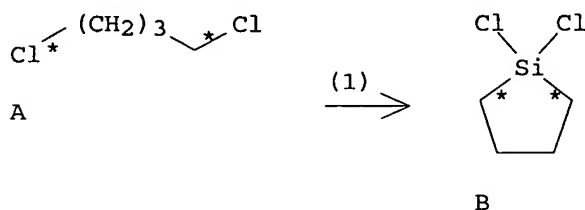
LANGUAGE: English

AB The direct reaction of Si with 1,4-dichlorobutane in the presence of a CuCl catalyst gives high selectivity for dichlorosilacyclopentane under some conditions. The effects of residence time, temperature, and promoters are explored, and the highest selectivity occurs at short residence time and in the presence of a Cd promoter. The reaction of Si with Me chloride is discussed as well. The Me chloride reaction is usually promoted by Zn and not by Cd. The reaction of Si with 1,3-dichloropropane and with 1,5-dichloropentane was also explored; however poor selectivity to any product occurred with these other dichloroalkanes. The origin of the selectivity for the silacyclopentane is discussed in terms of low

activation energy for ring closure in the five-membered ring case. Other low activation options such as reaction of silylene intermediate with C-H vs. C-Cl prevent good selectivity in the dichloropropane and dichloropentane reactions.

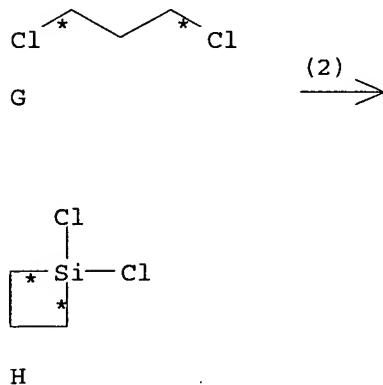
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 3 A ==> B



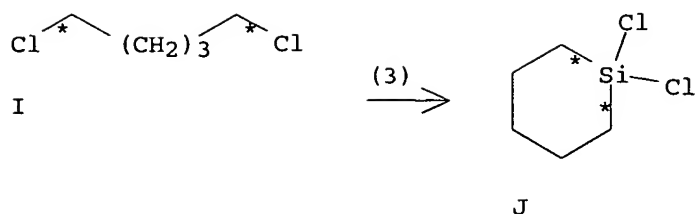
RX(1) RCT A 110-56-5
 RGT C 7440-21-3 Si
 PRO B 2406-33-9
 CAT 7758-89-6 CuCl, 7440-43-9 Cd, 7440-31-5 Sn
 CON 300 deg C
 NTE fixed bed reactor, gas phase, no solvent, thermal, Cd promoter
 gave better results than Zn

RX(2) OF 3 G ==> H



RX(2) RCT G 142-28-9
 RGT C 7440-21-3 Si
 PRO H 2351-33-9
 CAT 7758-89-6 CuCl, 7440-43-9 Cd, 7440-31-5 Sn
 CON 300 deg C
 NTE fixed bed reactor, gas phase, no solvent, thermal, poor product
 selectivity, 50% conversion, 15% selectivity

RX(3) OF 3 I ==> J



RX(3) RCT I 628-76-2
 RGT C 7440-21-3 Si
 PRO J 2406-34-0
 CAT 7758-89-6 CuCl, 7440-43-9 Cd, 7440-31-5 Sn
 CON 300 deg C
 NTE fixed bed reactor, gas phase, no solvent, thermal, poor product
 selectivity, trace yield

L74 ANSWER 2 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 142:219410 CASREACT
 TITLE: Preparation of organohalosilanes
 INVENTOR(S): Aramata, Mikio; Ishizaka, Hajime; Inukai, Tetsuya
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 15 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

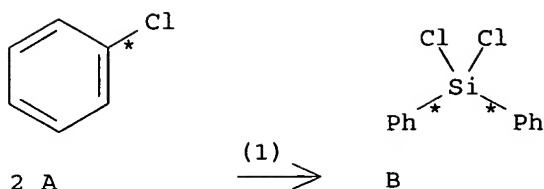
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1508571	A1	20050223	EP 2004-254984	20040819
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005097249	A2	20050414	JP 2004-179538	20040617
US 2005043557	A1	20050224	US 2004-919072	20040816
PRIORITY APPLN. INFO.:			JP 2003-297246	20030821
			JP 2004-179538	20040617

OTHER SOURCE(S): MARPAT 142:219410

AB Organohalosilanes are prepared by charging a reactor with a contact mass of metallic silicon and a catalyst and feeding an organo halide-containing gas to the reactor. Tin or a tin compound is used as the catalyst. Then organohalosilanes can be produced quite efficiently at a high reaction rate while maintaining a low T/D ratio and minimizing the deposition of byproducts and carbon. Thus, tin catalyzed reaction of metallic silicon with chlorobenzene gave mainly dichlorodiphenylsilane.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 2 A ==> B



RX(1) RCT A 108-90-7
 RGT C 7440-21-3 Si
 PRO B 80-10-4
 CAT 7440-31-5 Sn
 CON 450 deg C

L74 ANSWER 3 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 141:243682 CASREACT
 TITLE: Process for direct synthesis of methylchlorosilanes
 from methyl chloride and contact mass of silicon,
 copper and aluminum in presence of zinc and tin,
 antimony or phosphorus promoters
 INVENTOR(S): Endovin, Yu. P.; Baturova, S. A.; Chekrii, E. N.;
 Pererva, O. V.; Semenok, E. V.; Vavilov, V. V.;
 Polivanov, A. N.; Storozhenko, P. A.
 PATENT ASSIGNEE(S): FGUP Gos. Nauchno-Issled. Inst. Khim. Tekhnol.
 Elementoorganicheskikh Soedinenii, Russia
 SOURCE: Russ., No pp. given
 CODEN: RUXXE7
 DOCUMENT TYPE: Patent
 LANGUAGE: Russian
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

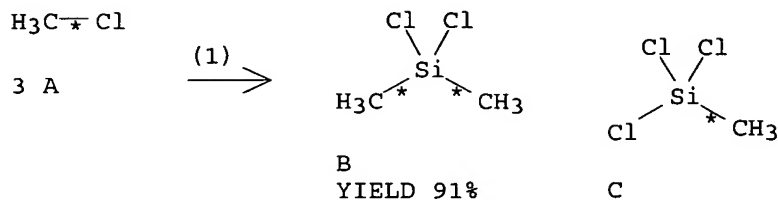
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2232764	C1	20040720	RU 2003-101868	20030127

PRIORITY APPLN. INFO.: RU 2003-101868 20030127

AB Methylchlorosilanes, useful as substrates for preparation of organosilicon oligomers and polymers (no data), are prepared in a direct synthesis by reaction of Me chloride with a contact mass containing powdered Si, Cu, Al and an activating agent consisting of a mixture of Zn or its compds. and an element chosen from Sn, Sb, P or their compds. taken sep. or in different combinations at temps. <350° up to Si conversions of 2-10 weight %, followed by addnl. charging Al-free contact mass. In an example, 243.85 g powdered Si, 5.0 g powdered Cu, 0.01 g powdered Sn, 0.5 g powdered Zn and 0.63 g powdered Al are combined at room temperature and charged to a tubular glass reactor of 30 mm diameter and 500 mm height equipped with an elec. heater along its length and a porous plate for addition of MeCl in its lower part, and this contact mass is purged with N₂ for 30 min and heated to 300°, whereupon MeCl is added at a rate of 150 g/h via the porous plate; after 7 h, conversion of Si is 68.3% and the Me₂SiCl₂ content in the products is 90.0%, whereas after 40 h, conversion of Si is 90.0 % and the Me₂SiCl₂ content is 90.5%, and further reaction is carried out with a contact mass containing no Al. This process provides higher conversions of Si and greater

selectivity toward Me₂SiCl₂ than prior art.

RX(1) OF 1 3 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6
 CAT 7440-50-8 Cu, 7429-90-5 Al, 7440-66-6 Zn, 7440-31-5 Sn
 CON SUBSTAGE(1) room temperature
 SUBSTAGE(2) 40 hours, 300 deg C
 NTE other products also detected, thermal, 300°, tubular
 reactor, second charge of contact mass has no Al

L74 ANSWER 4 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 141:207275 CASREACT

TITLE: The direct synthesis of methylchlorosilanes: New aspects concerning its mechanism

AUTHOR(S): Lorey, Lars; Roewer, Gerhard

CORPORATE SOURCE: Institut fuer Anorganische Chemie, TU Bergakademie Freiberg, Freiberg, D-9596, Germany

SOURCE: Silicon Chemistry (2004), Volume Date 2002, 1(4), 299-308

CODEN: SCIBH4; ISSN: 1569-0660

PUBLISHER: Kluwer Academic Publishers

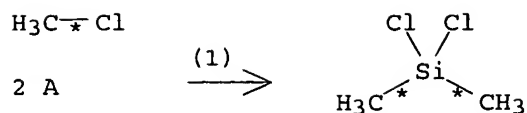
DOCUMENT TYPE: Journal

LANGUAGE: English

AB New results are given regarding the mechanism of the chemical process of Cu alloyed Si with Me chloride (the 'direct process'). As indicated by Photo-EMF measurements, carried out with doped Si samples the reactivity of Si significantly depends on the type of the doping with elements like P (n-type) Sn, B or In (p-type). In-situ trapping expts. with 2,3-dimethylbutadiene are consistent with the creation of silylene intermediates SiMeCl and SiCl₂. The selectivity of their competitive insertion steps can be controlled by the doping type and concns. of the doping elements, especially the P/Sn ratio criterion. N-Type doping favors the silylene insertion into the C-Cl bond due to the electronic silylene stabilization on the Si surface. In case of p-type doping silylene insertion into Si-Cl bond is favored more intensively giving disilanes.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 2 A ==> B



B

RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 7440-50-8 Cu, 7723-14-0 P
 CON 603K, 2 bar
 NTE no solvent, gas-solid reaction, flow-tube reactor, other products also detected

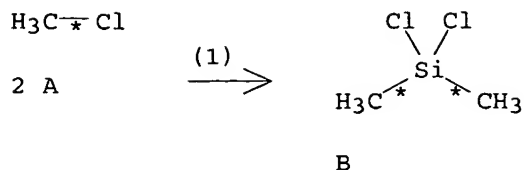
L74 ANSWER 5 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 140:128521 CASREACT
 TITLE: Method for preparation of alkylhalosilanes
 INVENTOR(S): Lewis, Larry Neil; Crawford, Alan Carson
 PATENT ASSIGNEE(S): General Electric Company, USA
 SOURCE: U.S. Pat. Appl. Publ., 8 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004024235	A1	20040205	US 2002-207342	20020730
US 6717004	B2	20040406		
WO 2005082913	A1	20050909	WO 2003-US23920	20030731
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003257058	A1	20050914	AU 2003-257058	20030731
PRIORITY APPLN. INFO.:				
			US 2002-207342	20020730
			WO 2003-US23920	20030731

AB A method for making alkylhalosilanes is provided comprising reacting an alkyl halide and silicon in the presence of a copper catalyst comprising copper powder, particulated copper, copper flake, or combinations thereof and at least one co-catalyst.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 2 A ==> B



RX(1)

STAGE(1)

RGT C 7440-21-3 Si
 CAT 7440-66-6 Zn, 7440-50-8 Cu
 CON SUBSTAGE(1) 0.5 hours, room temperature
 SUBSTAGE(2) 0.5 hours, room temperature -> 310 deg C

STAGE(2)

RCT A 74-87-3
 CON 310 deg C

PRO B 75-78-5

NTE gas phase, fixed-bed reactor used, either copper flake catalyst
 or copper OMG 831 powder catalyst can be used

L74 ANSWER 6 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 139:381608 CASREACT

TITLE: Method for preparing a contact mass of copper-silicon
 for production of alkylhalosilane

INVENTOR(S): Lewis, Larry Neil; Buckley, Paul William; Bablin, John
 Mathew; Wilson, Paul Russell; Smith, David John

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003220514	A1	20031127	US 2002-150829	20020520
WO 2003099829	A1	20031204	WO 2003-US15032	20030513
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003232125	A1	20031212	AU 2003-232125	20030513
EP 1507782	A1	20050223	EP 2003-755362	20030513
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005526612	T2	20050908	JP 2004-507486	20030513

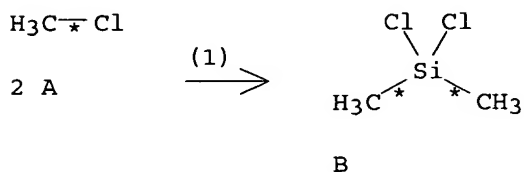
PRIORITY APPLN. INFO.:

US 2002-150829 20020520

WO 2003-US15032 20030513

AB A method of preparing a contact mass is provided comprising reacting silicon and a cuprous chloride to form a concentrated, catalytic contact mass. Furthermore, a method for making an alkylhalosilane using the aforementioned contact mass is provided comprising effecting reaction between an alkyl halide and silicon in the presence of said concentrated contact mass to produce alkylhalosilane.

RX(1) OF 1 2 A ==> B



RX(1)

STAGE(1)

RGT C 7440-21-3 Si, D 7758-89-6 CuCl

CON SUBSTAGE(1) room temperature -> 310 deg C

SUBSTAGE(2) 15 minutes, 285 - 310 deg C

STAGE(2)

RCT A 74-87-3

CAT 7440-66-6 Zn, 7440-31-5 Sn

CON 5.8 hours, 330 deg C

PRO B 75-78-5

NTE thermal, optimization study

L74 ANSWER 7 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 139:350849 CASREACT

TITLE: Preparation of organic halosilanes from silicon

INVENTOR(S): Ishizaka, Hajime; Ueno, Susumu; Shinohara, Norio; Tanito, Yoichi; Inukai, Tetsuya; Aramata, Mikio

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003313191	A2	20031106	JP 2002-117552	20020419
PRIORITY APPLN. INFO.:			JP 2002-117552	20020419

OTHER SOURCE(S): MARPAT 139:350849

AB $\text{R}_n\text{H}_m\text{SiX}_{4-n-m}$ (R = C1-6 hydrocarbyl; X = halo; n, m = 0-3; n + m = 1-3) are prepared by introducing organohalide-containing gases into reactors containing Si,

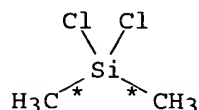
Cu catalysts, and cocatalysts containing finely dispersed Cs compds. A mixture

of Si powder 90, CsCl-treated Si powder 10, and Cu oxide catalyst 5 weight parts was treated with MeCl at 320° under 1.2 kg/cm² for 6 h to give Me₂SiCl₂ with 89.1% selectivity.

RX(1) OF 1 2 A ==> B

H₃C-~~*~~Cl

2 A (1) →



B

RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si, D 1344-70-3 Copper oxide
 PRO B 75-78-5
 CAT 7647-17-8 CsCl
 CON 6 hours, 320 deg C
 NTE alternative prepn. shown

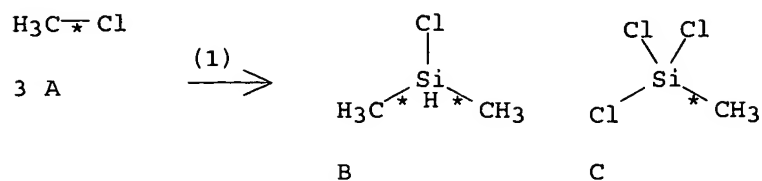
L74 ANSWER 8 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 139:149752 CASREACT
 TITLE: Preparation of silicon-hydrogen bonded
 alkyldichlorosilanes
 INVENTOR(S): Jung, Il Nam; Yoo, Bok Ryul; Han, Joon Soo; Lim, Weon
 Cheol; Kim, Mu Yeol
 PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea
 SOURCE: Ger. Offen., 14 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10302792	A1	20030807	DE 2003-10302792	20030124
DE 10302792	B4	20040506		
KR 2003065718	A	20030809	KR 2002-5452	20020130
US 2003166958	A1	20030904	US 2002-335084	20021231
US 6911552	B2	20050628		
JP 2003238575	A2	20030827	JP 2003-22087	20030130
PRIORITY APPLN. INFO.:			KR 2002-5452	20020130
OTHER SOURCE(S):	MARPAT 139:149752			

AB A procedure for preparation of silicon-hydrogen bonded alkyldichlorosilanes is described by direct conversion of metallic and/or elemental silicon with a mixture of alkyl chloride and hydrogen chloride or alkyl chloride, which produce hydrogen chloride with reaction temperature, in presence of a copper catalyst. Thus, copper catalyzed reaction of elemental silicon with Me chloride at 340° for 40-70 min gave a mixture of chlorodimethylsilane

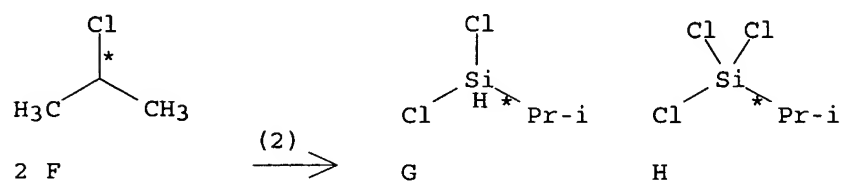
and trichloro(methyl)silane.

RX(1) OF 4 3 A ==> B + C



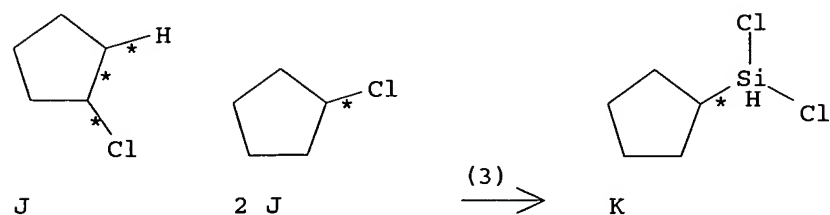
RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 1066-35-9, C 75-79-6
 CAT 7440-50-8 Cu
 NTE heating copper and silicon at 350° at first step

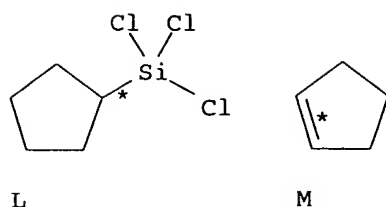
RX(2) OF 4 2 F ==> G + H



RX(2) RCT F 75-29-6
 RGT D 7440-21-3 Si, I 7647-01-0 HCl
 PRO G 18191-45-2, H 4170-46-1
 CAT 7440-50-8 Cu
 NTE heating copper and silicon at 220° at first step

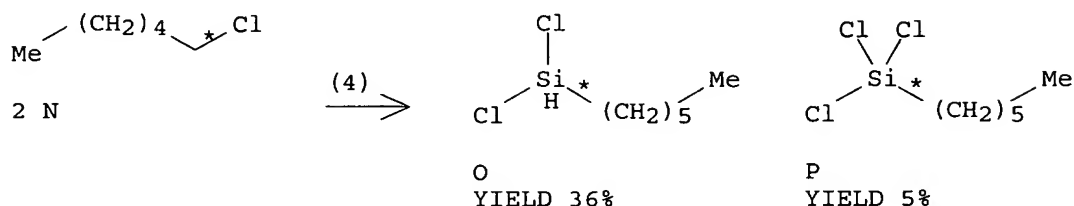
RX(3) OF 4 3 J ==> K + L + M





RX(3) RCT J 930-28-9
 RGT D 7440-21-3 Si
 PRO K 143264-36-2, L 14579-03-4, M 142-29-0
 CAT 7440-50-8 Cu
 NTE HEATING COPPER AND SILICON AT 260.DEGREE. AT FIRST STEP, SICL3
 ALSO FORMED

RX(4) OF 4 2 N ==> O + P



RX(4) RCT N 544-10-5
 RGT D 7440-21-3 Si, I 7647-01-0 HCl
 PRO O 871-64-7, P 928-65-4
 CAT 7440-50-8 Cu
 NTE heating copper and silicon at 280° at first step

L74 ANSWER 9 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 139:54531 CASREACT
 TITLE: Method and effect of catalyst dispersion in direct
 synthesis of DDS

AUTHOR(S): Han, Lu; Luo, Wuxi; Liang, Weihua; Wang, Guangrun;
 Wang, Jinfu

CORPORATE SOURCE: Department of Chemical Engineering, Tsinghua
 University, Beijing, 100084, Peop. Rep. China

SOURCE: Huagong Xuebao (Chinese Edition) (2003), 54(3),
 398-402

CODEN: HUKHAI; ISSN: 0438-1157

PUBLISHER: Huaxue Gongye Chubanshe, Huagong Xuebao Bianjibu

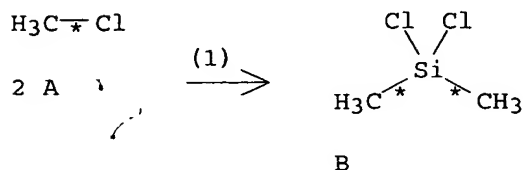
DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Based on the synthesis of DDS (dimethyldichlorosilane) in fluidization
 bed, a new method that can remarkably enhance reactivity and selectivity
 of the copper-silicon contact mass is investigated exptl. DDS is produced
 from silicon and Me chloride at about 300° in the direct synthesis
 process. The catalyst used in this reaction system is active cuprous
 chloride powder, which usually forms conglomeration of powder. The
 conglomerate of catalyst is known to be harmful to the synthesis reaction.
 Treated by ultrasonic energy, conglomeration of active cuprous chloride

catalyst is destroyed, so as to achieve better proportioned dispersion of silicon and catalyst powder. By this means, CuCl catalyst is distributed evenly on the surface of silicon powder, thereby reaction activity and selectivity are increased in the synthesis process of DDS. Using ultrasonic dispersion achieves the same reaction activity with smaller catalyst dosage than the normal dispersion method.

RX(1) OF 1 2 A ==> B



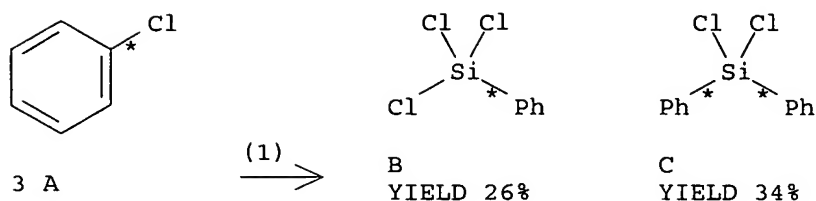
RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 7758-89-6 CuCl
 CON 290 deg C, 0.3 MPa
 NTE optimization study, fluidization bed used

L74 ANSWER 10 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 138:24763 CASREACT
 TITLE: Direct synthesis of phenylchlorosilanes
 AUTHOR(S): Voiculescu, Nicolae
 CORPORATE SOURCE: Inst. de Chim. Macromol. "Petru Poni" Iasi, Iasi,
 6600, Rom.
 SOURCE: Revista de Chimie (Bucharest, Romania) (2002), 53(5),
 388-393
 CODEN: RCBUAU; ISSN: 0034-7752
 PUBLISHER: SYSCOM 18 SRL
 DOCUMENT TYPE: Journal
 LANGUAGE: Romanian

AB The formation of the main products during direct synthesis of phenylchlorosilanes can be reduced to the equation: $2\text{C}_6\text{H}_5\text{Cl} + \text{Si} \rightarrow \text{Ph}_2\text{SiCl}_2$. In fact, this reaction is very complicated due to the high temperature and excepting the main products in the reaction mixture, over ten compds. and a residue were identified. A laboratory apparatus was used to establish the optimum parameters of the direct synthesis, which involved inputting PhCl at 86.60 g/h at 430° for 86 h over a 70:30 Si:Cu catalyst, 10 L/h N₂; based on Si, the product content included 26.44% PhSiCl₃ and 34.03% Ph₂SiCl₂. The main reactants of the direct synthesis were monochlorobenzene and Si from domestic sources. Monochlorobenzene was used in mixture with N, the latter being both diluent and fluidizing agent.

RX(1) OF 1 3 A ==> B + C



RX(1) RCT A 108-90-7
 RGT D 7440-21-3 Si
 PRO B 98-13-5, C 80-10-4
 CAT 7440-50-8 Cu
 NTE 430°, other products formed

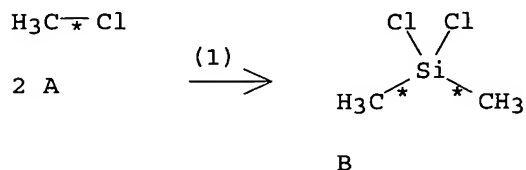
L74 ANSWER 11 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 137:185675 CASREACT
 TITLE: Rapid production method for organohalosilanes
 INVENTOR(S): Inukai, Tetsuya; Ueno, Susumu; Shinohara, Norio;
 Aramata, Mikio; Tanifuji, Yoichi; Ishizaka, Hajime
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002241384	A2	20020828	JP 2001-37174	20010214
US 2002156310	A1	20021024	US 2002-74025	20020214
US 6506923	B2	20030114		
PRIORITY APPLN. INFO.:			JP 2001-37174	20010214

OTHER SOURCE(S): MARPAT 137:185675

AB Silicon granules react with organohalides RX in the presence of a Cu catalyst and atomized metals to prepare organohalosilanes $R_nH_mSiX_{4-n-m}$ (R = monovalent hydrocarbyl, X = halo; n, m = 0-3, n + m = 1-3). Thus, MeCl under N reacted in a fluidized-bed reactor containing 100 parts Si, 4 parts powdered Cu, and 0.5 parts atomized Cu at 310° to prepare Me₂Cl₂Si.

RX(1) OF 1 2 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 7440-50-8 Cu

NTE 310° under N2, fluidized-bed reactor

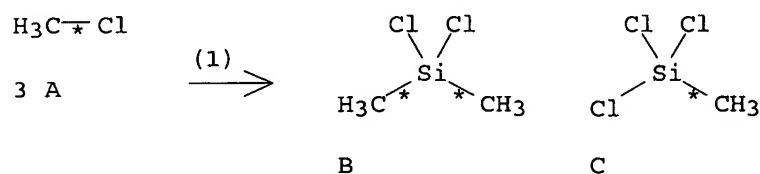
L74 ANSWER 12 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 137:20470 CASREACT
 TITLE: Method for improving selectivity for dialkyldichlorosilane
 INVENTOR(S): Lewis, Larry Neil; Colborn, Robert Edgar; Bablin, John Matthew
 PATENT ASSIGNEE(S): General Electric Company, USA
 SOURCE: U.S., 20 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6407276	B1	20020618	US 2001-820025	20010329
PRIORITY APPLN. INFO.:			US 2001-820025	20010329

AB A method for forming a dialkyldichlorosilane, comprising reacting elemental silicon with an alkyl chloride using copper as a catalyst together with promoters zinc, tin, and a special promoter. The special promoter is silver, a silver compound, gold, a gold compound, or combinations thereof. The alkyl may be Me such that the dialkyldichlorosilane is dimethyldichlorosilane and the alkyl chloride is Me chloride. The reacting generates the dialkyldichlorosilane in accordance with a first selectivity for the dialkyldichlorosilane that exceeds a second selectivity for the dialkyldichlorosilane. The second selectivity is a selectivity for the dialkyldichlorosilane that would have existed had the special promoter been absent.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 3 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-66-6 Zn, E 7440-31-5 Sn, F 7440-21-3 Si, G 7783-90-6 AgCl
 PRO B 75-78-5, C 75-79-6
 CAT 7440-50-8 Cu
 SOL 74-87-3 MeCl
 NTE fixed bed reactor, alternative prepns. shown

L74 ANSWER 13 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 136:325691 CASREACT
 TITLE: Preparation of organohalosilanes
 INVENTOR(S): Ishizaka, Hajime; Ueno, Susumu; Shinohara, Norio;

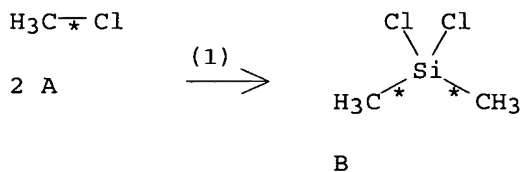
PATENT ASSIGNEE(S): Tanifuji, Yoichi; Inukai, Tetsuya; Aramata, Mikio
 SOURCE: Shin-Etsu Chemical Industry Co., Ltd., Japan
 Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002128786	A2	20020509	JP 2000-320538	20001020
US 6395917	B1	20020528	US 2001-981822	20011019
US 2002082437	A1	20020627		
PRIORITY APPLN. INFO.:			JP 2000-320538	20001020

OTHER SOURCE(S): MARPAT 136:325691

AB RnHmSiX(4-n-m) (R = C1-6 hydrocarbyl; X = halo; n, m = 0-3; n + m = 1-3)
 are prepared by reaction of Si powders with organohalide-containing gases using
 Cu catalysts and cocatalysts, one or both of which are coated with silica
 fine powders under shear force. MeCl was treated with Si powder in the
 presence of electrolytic Cu powder, Zn powder, Sn powder, and fumed
 silica-coated Cu phosphide powder at 310° under 1.2 kg/cm² to give
 silanes at 45.9 g/h with Me₂SiCl₂ ratio 92.0%.

RX(1) OF 1 2 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 12643-19-5 Copper phosphide, 7631-86-9 SiO₂, 7440-50-8 Cu,
 7440-66-6 Zn, 7440-31-5 Sn
 NTE gas phase

L74 ANSWER 14 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 136:216886 CASREACT

TITLE: Method for promoting dialkyldihalosilane formation
 during direct method alkylhalosilane production

INVENTOR(S): Lewis, Larry Neil; Ward, William Jessup; Demoulied,
 David Cheney; Bablin, John Matthew; Gardner, Martha
 Maples

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

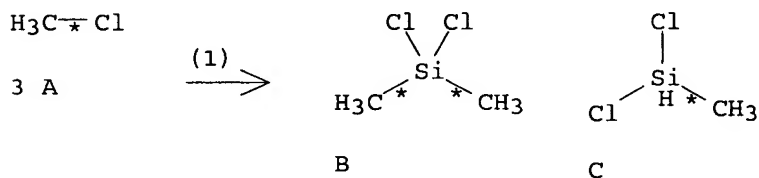
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

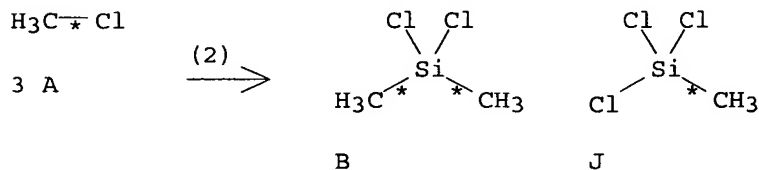
 EP 1184387 A2 20020306 EP 2001-307020 20010817
 EP 1184387 A3 20030115
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO
 US 6423860 B1 20020723 US 2000-655423 20000905
 JP 2002179685 A2 20020626 JP 2001-266594 20010904
 PRIORITY APPLN. INFO.: US 2000-655423 20000905
 AB A method is described for dialkyldihalosilane (e.g.,
 dimethyldichlorosilane) formation during direct method reaction between
 alkyl halide and powdered silicon in the presence of a catalyst comprising
 copper, zinc, and aluminum and further comprising an amount of phosphorus
 and tin.

RX(1) OF 2 3 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-78-5, C 75-54-7
 CAT 7758-89-6 CuCl, 7440-66-6 Zn, 7440-31-5 Sn
 SOL 110-54-3 Hexane, 75-09-2 CH₂Cl₂
 NTE product selectivity depends on stoichiometry between catalyst
 and reagent

RX(2) OF 2 3 A ==> B + J



RX(2) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-78-5, J 75-79-6
 CAT 7758-89-6 CuCl, 7440-66-6 Zn, 7440-31-5 Sn, 1314-84-7 Zinc
 phosphide (Zn₃P₂)
 SOL 110-54-3 Hexane, 75-09-2 CH₂Cl₂
 NTE product selectivity depends on stoichiometry between catalyst
 and reagent

L74 ANSWER 15 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 136:53789 CASREACT
 TITLE: The Use of a Fixed-Bed Reactor to Evaluate the
 Interactions of Catalysts and Promoters in the Methyl

Chlorosilane Reaction and to Determine the Effect of Cu in the Form of the Eta Phase on This Reaction

AUTHOR(S): Lewis, Larry N.; Ward, William J.
 CORPORATE SOURCE: General Electric Research and Development Center, Niskayuna, NY, 12309, USA
 SOURCE: Industrial & Engineering Chemistry Research (2002), 41(3), 397-402
 CODEN: IECRED; ISSN: 0888-5885
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

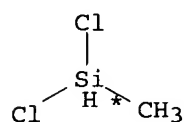
AB A fixed-bed reactor was employed to study the methylchlorosilane (MCS) reaction, also called the direct process. A copper-silicon contact mass as the main MCS catalyst was used. The copper-silicon contact mass was prepared by the reaction of CuCl with silicon. The effect of added zinc and phosphorus to the MCS reaction was explored, and it was found that, at Cu/Zn ratios > 30, phosphorus addition resulted in an increase in selectivity for dimethyldichlorosilane (Di) at the expense of methyltrichlorosilane (Tri) and residue. Addition of tin to the MCS reaction resulted in an increased overall rate but with a decrease in Di and an increase in disilane formation. Addition of phosphorus and high tin levels resulted in a high rate but with a high selectivity for Di; phosphorus negated the selectivity penalty caused by the addition of tin alone. Phosphorus appeared to cause an increase in formation of the eta phase (Cu₃Si), as determined by anal. of MCS beds formed under different conditions. Previously reported arguments show that copper diffusion is operative for Cu-Si renewal in MCS but that Cu diffusion is not the rate-limiting step in the reaction.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

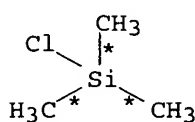
RX(1) OF 1 33 A ==> B + C + D +
 E + F + G + H + I + J
 + K + L

H₃C-Cl

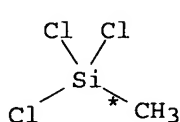
33 A $\xrightarrow{(1)}$



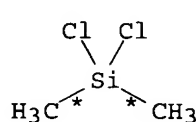
B



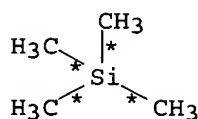
C



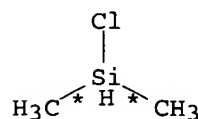
D



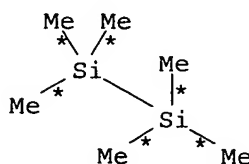
E



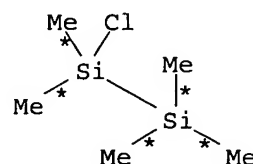
F



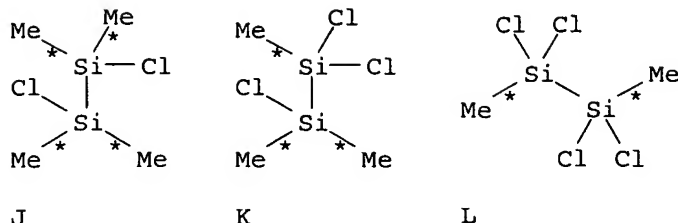
G



H



I



RX(1) RCT A 74-87-3
 RGT M 7440-21-3 Si
 PRO B 75-54-7, C 75-77-4, D 75-79-6, E
 75-78-5, F 75-76-3, G 1066-35-9, H 1450-14-2,
 I 1560-28-7, J 4342-61-4, K
 13528-88-6, L 4518-98-3
 CAT 7758-89-6 CuCl, 7440-31-5 Sn
 NTE thermal, the Si was doped with trace elements, alternative
 reaction CONDITIONS SHOWN, SiCl₄ AND SiHCl₃ ALSO FORMED

L74 ANSWER 16 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 135:344592 CASREACT

TITLE: Preparation and use of a contact mass to effect
 production of alkylhalosilanes

INVENTOR(S): Lewis, Larry Neil; Ward, William Jessup, III; Bablin,
 John Matthew

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: PCT Int. Appl., 18 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

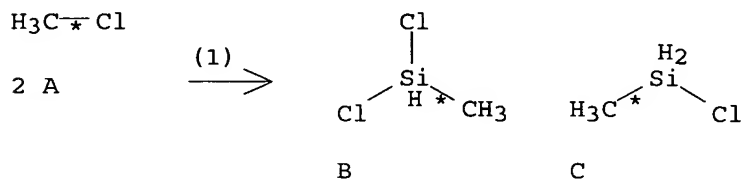
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001081354	A2	20011101	WO 2001-US5417	20010220
WO 2001081354	A3	20020404		
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6528674	B1	20030304	US 2000-553912	20000420
EP 1280733	A2	20030205	EP 2001-912855	20010220
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2003531007	T2	20031021	JP 2001-578442	20010220
RU 2265073	C2	20051127	RU 2002-131157	20010220
PRIORITY APPLN. INFO.:			US 2000-553912	20000420
			WO 2001-US5417	20010220

AB A method for making an alkylhalosilane is provided wherein the method comprises heat treating silicon and a form of copper at a temperature greater

than about 500° to produce a contact mass and effecting reaction between an alkyl halide and silicon in the presence of the contact mass to produce alkylhalosilane. Thus, in a fixed bed reactor, the fixed bed, comprising a silicon contact mass containing 5% copper chloride, 0.05% by weight

zinc dust, and 50 ppm tin dust, was reacted with Me chloride for 1-2 h at 1100° to give chloromethylsilane and dichloromethylsilane.

RX(1) OF 1 2 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-66-6 Zn, E 7440-31-5 Sn, F 7440-21-3 Si, G
 7758-89-6 CuCl
 PRO B 75-54-7, C 993-00-0
 NTE TEMP.1100 DEGREE

L74 ANSWER 17 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 135:273075 CASREACT

TITLE: Direct process for preparing organochlorosilanes by use of recovered copper chloride catalyst

INVENTOR(S): Kalchauer, Wilfried; Straussberger, Herbert; Streckel, Willibald; Goetze, Ulrich

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany

SOURCE: Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

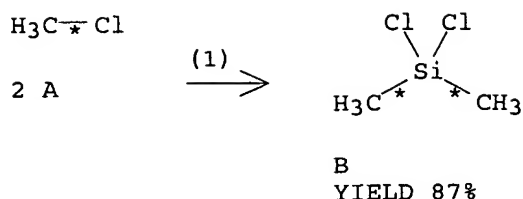
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142897	A1	20011010	EP 2001-102109	20010131
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2001041805	A1	20011115	US 2001-814193	20010321
US 6323357	B1	20011127		
JP 2001348391	A2	20011218	JP 2001-109034	20010406

PRIORITY APPLN. INFO.: DE 2000-10017153 20000406

AB In CuCl-catalyzed direct synthesis of organochlorosilanes, the copper containing residue was treated with mineral acid which oxidizes the copper to CuCl₂ solution Treatment of CuCl₂ solution with iron reduces the copper solution to CuCl solution

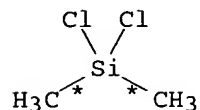
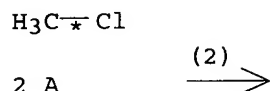
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 2 2 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 7758-89-6 CuCl, 1314-13-2 ZnO, 7440-31-5 Sn

RX(2) OF 2 2 A ==> B



B
 YIELD 84%

RX(2) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 1314-13-2 ZnO, 7440-31-5 Sn, 1317-38-0 CuO

L74 ANSWER 18 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 135:227112 CASREACT
 TITLE: Procedure for preparation of alkylchlorosilanes by processing residues from the direct synthesis of organochlorosilanes
 INVENTOR(S): Mautner, Konrad; Tamme, Gudrun; Koehler, Bernd
 PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany
 SOURCE: Ger., 4 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10039172	C1	20010913	DE 2000-10039172	20000810
EP 1179534	A1	20020213	EP 2001-112039	20010523
EP 1179534	B1	20020911		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO
 US 6344578 B1 20020205 US 2001-915038 20010725
 CA 2354299 AA 20020210 CA 2001-2354299 20010730
 JP 2002155089 A2 20020528 JP 2001-239495 20010807
 JP 3615722 B2 20050202

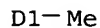
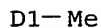
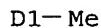
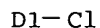
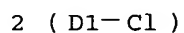
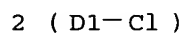
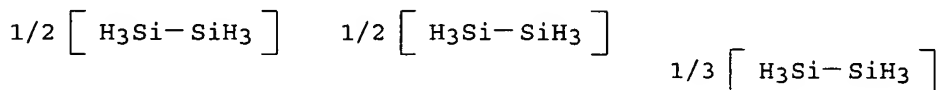
PRIORITY APPLN. INFO.:

DE 2000-10039172 20000810

AB Alkylchlorosilanes are produced from the liquid components of residues from the direct synthesis of alkylchlorosilanes, which have a b.p. >70° at 1013 hPa and which contain disilanes, by heating the residues with HCl and Si at temps. ≥300°, preferably in a fluidized-bed reactor and preferably ≥400°, whereby simultaneously at least 10 weight % tri- and/or tetrachlorosilane are formed, based on the weight of the alkylchlorosilanes prepared. In an example, 70 mL/h high-boiling residues containing 75% disilanes (mixture of 1,1,2,2-tetrachlorodimethyldisilane, 1,1,2-trichlorotrimethyldisilane, 1,2-dichlorotetramethyldisilane, and other silanes; b.p. >150°) from silane synthesis together with 25 L/h gaseous HCl were fed into an elec. heated laboratory fluidized-bed reactor, 500 mm long and 40 mm inner diameter, filled with 266 g Si, at room temperature, whereupon the reactor was heated to 600° for 20 h, affording 100 g/h of a silane mixture containing approx. 20% HSiCl₃ and 40% SiCl₄; when the HSiCl₃ and SiCl₄ were ignored, the silane cleavage products contained 7% MeSiHCl₂, 25% MeSiCl₃, 12% Me₂SiCl₂ and 55% other products. In contrast, when a tubular reactor was used, the reaction zone became clogged with solids and silane cracking products after 17 h.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

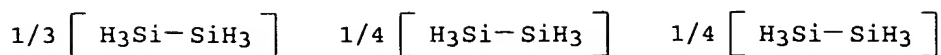
RX(1) OF 1 2 A + 2 B + 5 C ==> D + E +
 F + G



A

A

B



D1-Cl

1/2 (D1-Cl)

1/2 (D1-Cl)

D1-Me

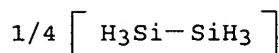
D1-Me

D1-Me

B

2 C

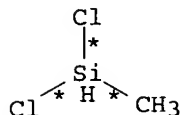
C



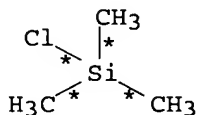
1/2 (D1-Cl)

D1-Me

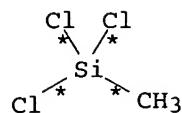
2 C



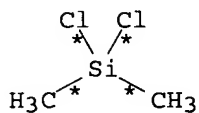
D



E



F



G

RX(1) RCT A 71951-01-4, B 98201-96-8, C 39437-99-5
 RGT H 7647-01-0 HCl, I 7440-21-3 Si
 PRO D 75-54-7, E 75-77-4, F 75-79-6, G 75-78-5
 NTE other products formed, fluidized-bed reactor, 600°

L74 ANSWER 19 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 135:166923 CASREACT
 TITLE: Preparation of organohalosilanes
 INVENTOR(S): Aramata, Mikio; Fujioka, Kazutoshi; Yuyama, Masahiro
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1

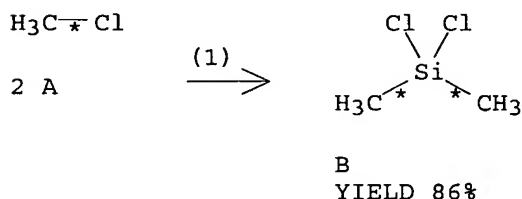
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001226382	A2	20010821	JP 2000-34646	20000214
US 2001020108	A1	20010906	US 2001-782190	20010214
US 6339167	B2	20020115		

PRIORITY APPLN. INFO.: JP 2000-34646 20000214

AB Title compds. are prepared by reaction of Si with halohydrocarbons in the presence of Cu or Cu compound catalysts and ≥ 1 accelerator selected from activated Al, Al alloy, and Al_4C_3 at 250-400° in a steering reactor or fluidized-bed reactor. Powdered silicon was reacted with CH_3Cl in the presence of activated alloy (manufactured from aluminum silicide 100, tin 10, and $CuCl_2$ 10), zinc oxide, and $CuCl_2$ at 280-300° to give 86.5% Me_2SiCl_2 .

RX(1) OF 1 2 A ==> B



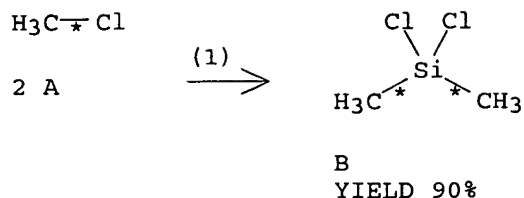
RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 7447-39-4 $CuCl_2$, 11099-22-2 Aluminum alloy, nonbase, Al, Si,
 1314-13-2 ZnO

L74 ANSWER 20 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 134:326620 CASREACT
 TITLE: Preparation of organohalosilanes
 INVENTOR(S): Aramata, Mikio; Fujimoto, Tatsuya; Saito, Ryuichi;
 Yuyama, Masahiro; Inukai, Tetsuya; Ishizaka, Hajime
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001122880	A2	20010508	JP 1999-303106	19991025
US 6288258	B1	20010911	US 2000-694370	20001024
			JP 1999-303106	19991025

PRIORITY APPLN. INFO.: JP 1999-303106 19991025
 AB The compds. $R_nH_mSiX_4-n-m$ (R = hydrocarbyl; X = halo; n, m = 0-4) are prepared by reaction of Si with organohalides in the presence of Cu catalysts containing 50-10,000 ppm phosphor bronze. Si was reacted with $MeCl$ in the presence of a Cu catalyst at 280-300° and linear velocity 7 cm/s for 72 h to give methylchlorosilane containing 90.8 weight% Me_2SiCl_2 .

RX(1) OF 1 2 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5
 CAT 337378-24-2 Copper alloy, base, Cu 79,P 10,Sn 10, 7440-50-8 Cu,
 7440-66-6 Zn
 NTE gas phase

L74 ANSWER 21 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 134:207869 CASREACT

TITLE: Synthesis of tris(silyl)methanes by modified direct process

AUTHOR(S): Lee, Chang Yeob; Han, Joon Soo; Oh, Hyung Sic; Yoo, Bok Ryul; Jung, Il Nam

CORPORATE SOURCE: Department of Chemistry, Mokpo National University, Chonnam, 534-729, S. Korea

SOURCE: Bulletin of the Korean Chemical Society (2000), 21(10), 1020-1024

CODEN: BKCSDE; ISSN: 0253-2964

PUBLISHER: Korean Chemical Society

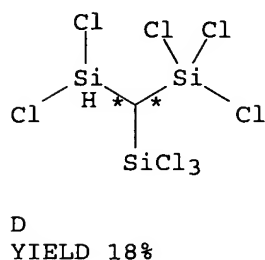
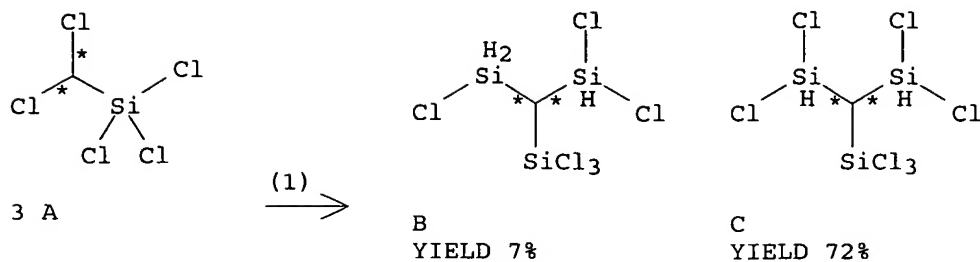
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Direct reaction of elemental Si with a mixture of (dichloromethyl)silanes 1 [Cl₃-nMenSiCHCl₂: n = 0 (a), n = 1 (b), n = 2 (c), n = 3 (d)] and HCl was studied in the presence of Cu catalyst using a stirred bed reactor equipped with a spiral band agitator at various temps. from 240° to 340°. Tris(silyl)methanes with Si-H bonds, 3a-d [Cl₃-nMenSiCH(SiHCl₂)₂], and 4a-d [Cl₃-nMenSiCH(SiHCl₂)(SiCl₃)], were obtained as the major products and tris(silyl)methanes having no Si-H bonds, 5a-d [Cl₃-nMenSiCH(SiCl₃)₂], as the minor products along with byproducts of bis(chlorosilyl)methanes, derived from the reaction of Si with chloromethylsilane formed by the decomposition of 1. In addition to those products, trichlorosilane and tetrachlorosilane were produced by the reaction of elemental Si with HCl. The decomposition of 1 was suppressed and the production of polymeric carbosilanes reduced by adding HCl to 1. Cd was a good promoter for the reaction, and the optimum temperature for this direct synthesis was 280°.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 4 3 A ==> B + C + D



RX(1) RCT A 1558-24-3

STAGE(1)

RGT E 7440-21-3 Si

CAT 7440-50-8 Cu

STAGE(2)

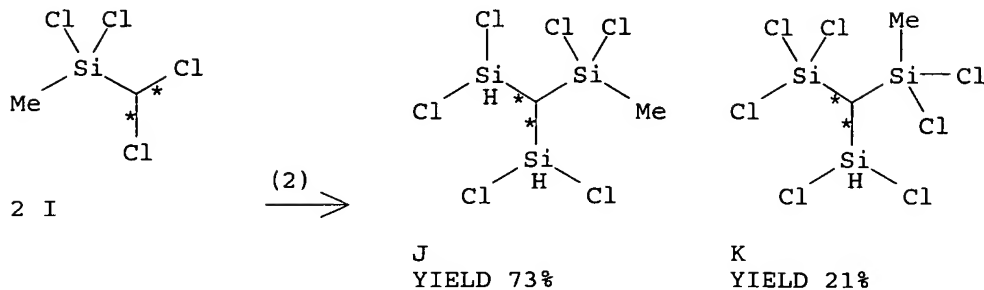
RGT F 7440-43-9 Cd

STAGE(3)

RGT G 7647-01-0 HCl

PRO B 328388-20-1, C 18170-91-7, D
 18170-93-9

RX(2) OF 4 2 I ==> J + K



RX(2) RCT I 1558-31-2

STAGE(1)

RGT E 7440-21-3 Si

CAT 7440-50-8 Cu

STAGE(2)

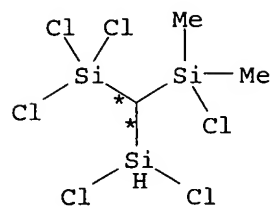
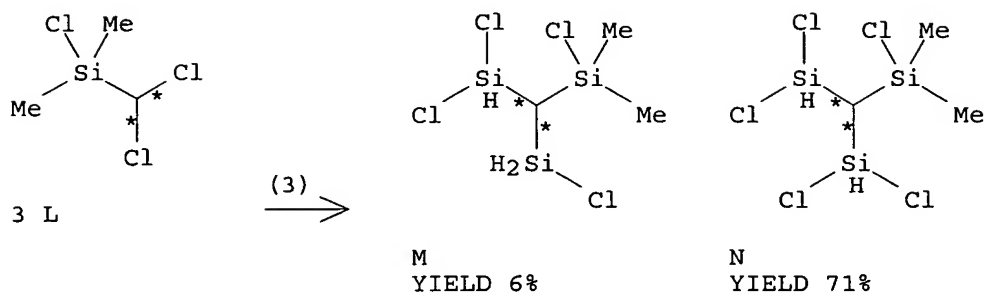
RGT F 7440-43-9 Cd

STAGE(3)

RGT G 7647-01-0 HCl

PRO J 166970-83-8, K 166970-84-9

RX(3) OF 4 3 L ==> M + N + O

O
YIELD 21%

RX(3) RCT L 18171-59-0

STAGE(1)

RGT E 7440-21-3 Si

CAT 7440-50-8 Cu

STAGE(2)

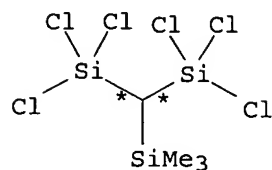
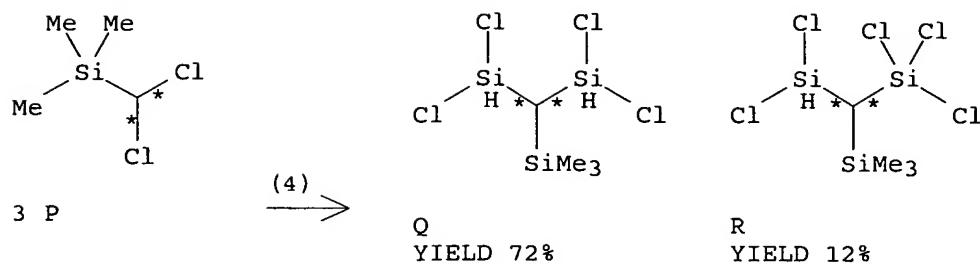
RGT F 7440-43-9 Cd

STAGE(3)

RGT G 7647-01-0 HCl

PRO M 328388-22-3, N 166970-80-5, O
166970-81-6

RX(4) OF 4 3 P ==> Q + R + S



YIELD 11%

RX(4) RCT P 5926-38-5

STAGE(1)

RGT E 7440-21-3 Si
CAT 7440-50-8 Cu

STAGE(2)

RGT F 7440-43-9 Cd

STAGE(3)

RGT G 7647-01-0 HCl

PRO Q 166970-85-0, R 166970-86-1, S
72169-26-7

L74 ANSWER 22 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 133:362839 CASREACT

TITLE: Method for preparation of alkylhalosilanes via
reaction of alkyl halide with powdered silicon in
presence of catalyst and co-catalyst

INVENTOR(S): Hanaoka, Hiroaki; Koyama, Hiroaki; Otani, Eiichi;
Lewis, Larry Neil; Demoultier, David Cheney; Bablin,
John Matthew

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1055675	A2	20001129	EP 2000-304173	20000517

EP 1055675 A3 20010328

EP 1055675 B1 20030521

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

JP 2001011082 A2 20010116

JP 2000-153897 20000525

CN 1276375 A 20001213

CN 2000-108734 20000526

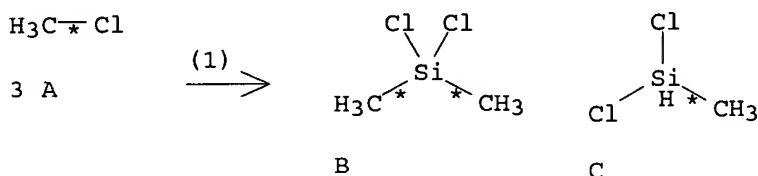
PRIORITY APPLN. INFO.:

US 1999-136265P 19990527

US 1999-345540 19990630

AB A method for making alkylhalosilanes, e.g. methylchlorosilanes, comprising reaction of an alkyl halide, e.g. Me chloride, and powdered silicon in the presence of an effective amount of a catalyst and an effective amount of a copper-aluminum co-catalyst with or without the addition of phosphorus. The catalyst typically comprises copper, zinc and tin.

RX(1) OF 1 3 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-78-5, C 75-54-7
 CAT 7440-50-8 Cu, 7429-90-5 Al, 7723-14-0 P
 NTE flow system; optimized for catalyst components; most aspects claimed

L74 ANSWER 23 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 132:23084 CASREACT

TITLE: Preparation of alkylhalosilanes by reaction of alkyl halides with carbon monoxide-activated contact mass containing silicon and copper catalyst

INVENTOR(S): Armbrust, Ralph; Steiner, Matthias; Schild, Christoph

PATENT ASSIGNEE(S): GE Bayer Silicones G.m.b.H. und Co. K.-G., Germany

SOURCE: PCT Int. Appl., 15 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9964429	A1	19991216	WO 1999-EP3924	19990608

W: JP, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE

DE 19825767 A1 20000105 DE 1998-19825767 19980609

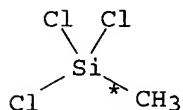
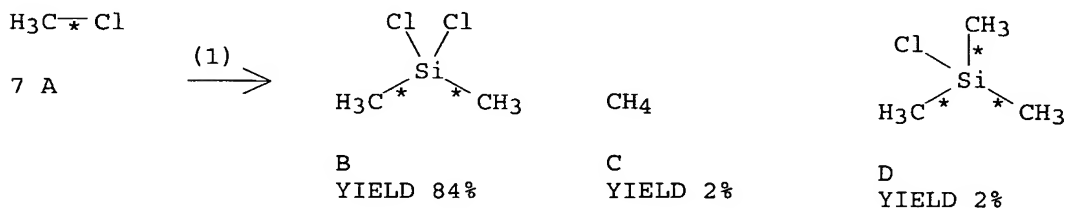
PRIORITY APPLN. INFO.: DE 1998-19825767 19980609

AB Alkylhalosilanes are prepared by reaction of an alkyl halide, preferably MeCl, with a contact mass consisting of silicon, a catalyst and optionally addnl. promoters, preferably 10-10,000 parts Zn and 5-500 parts Sn per 1 x 106 parts Si at 270-370°, such that the contact mass was activated

by CO at 100-1100°. In an example, CO is conducted through a stirred-bed reactor containing 40 g Si (>99% pure), 3.2 g copper oxide catalyst, and 0.05 g ZnO at 4 L/h at 330° for 3 h, whereupon MeCl is introduced from below into the contact mass at 2 bar absolute pressure at 1.8 L/h to give 84.9% Me₂SiCl₂, 7% Me₃SiCl, and smaller amts. of other products at 7 g/h with an induction time of 27 min, in contrast to an induction time of 72 min in a comparative example where the contact mass is not previously activated by CO.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 7 A ==> B + C + D + E



E
YIELD 7%

RX(1) RCT A 74-87-3
 RGT F 7440-21-3 Si
 PRO B 75-78-5, C 74-82-8, D 75-77-4, E
 75-79-6
 CAT 1314-13-2 ZnO, 7440-50-8 Cu, 1317-39-1 Cu₂O, 1317-38-0 CuO

L74 ANSWER 24 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 131:351456 CASREACT
 TITLE: Preparation of alkyl(halo)silanes from alkyl halides and elemental silicon containing phosphorus and tin in presence of copper catalyst
 INVENTOR(S): Margaria, Thomas; Steiner, Mathias Sven; Armbrust, Ralph
 PATENT ASSIGNEE(S): GE Bayer Silicones GmbH & Co. KG, Germany; Pechiney Electrometallurgie
 SOURCE: PCT Int. Appl., 18 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9960001	A1	19991125	WO 1999-EP3146	19990507

W: JP, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE

DE 19821628 A1 19991125 DE 1998-19821628 19980514

EP 1086110 A1 20010328 EP 1999-923555 19990507

EP 1086110 B1 20030806

R: DE, ES, FR, GB, IT

JP 2002515504 T2 20020528 JP 2000-549619 19990507

ES 2207944 T3 20040601 ES 1999-923555 19990507

PRIORITY APPLN. INFO.: DE 1998-19821628 19980514

WO 1999-EP3146 19990507

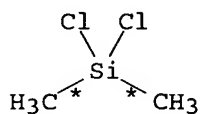
AB Alkyl(halo)silanes are prepared by reaction of alkyl halides, preferably MeCl, with Si in presence of a Cu catalyst and, if needed, other promoters, such as 10-10,000 ppm Zn (with respect to Si), at 250-370° such that the Si used contains 250-850 ppm P and 25-85 ppm Sn, preferably with a P:Sn ratio of 4:1-14:1. In examples given, the selectivity for desired product Me₂SiCl₂ reached 92.9% at 300° and 1000 ppm ZnO when Si containing 640 ppm P and 74 ppm Sn (P:Sn = 8.6:1) was used.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

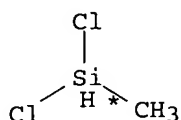
RX(1) OF 1 7 A ==> B + C + D +
E

H₃C-^{*}Cl

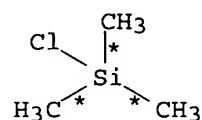
7 A



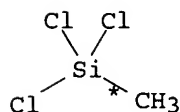
B
YIELD 93%



C
YIELD 1%



D
YIELD 1%



E
YIELD 3%

RX(1) RCT A 74-87-3
RGT F 7440-21-3 Si
PRO B 75-78-5, C 75-54-7, D 75-77-4, E
75-79-6
CAT 7440-50-8 Cu, 1314-13-2 ZnO, 7440-31-5 Sn, 7723-14-0 P

L74 ANSWER 25 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 129:122762 CASREACT

TITLE: Preparation of alkylhalosilanes from silicon metalloid
powder and alkyl halidesINVENTOR(S): Nakanishi, Tetsuo; Inukai, Tetsuya; Tsukioka,
Kazumasa; Nakayama, Hiroshi; Sato, Yukinori

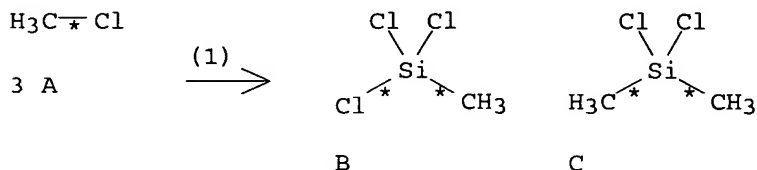
PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10175982	A2	19980630	JP 1996-353019	19961213
JP 3362619	B2	20030107		
US 5847181	A	19981208	US 1997-812942	19970304
			JP 1996-353019	19961213

PRIORITY APPLN. INFO.:
 OTHER SOURCE(S): MARPAT 129:122762

AB RnSiX_{4-n} (R = C1-4 alkyl; X = halo; n = 0-4) are prepared by feeding alkyl halide-containing gases into reactors containing Si powder and Cu catalysts in the presence of 3000-10,000 ppm (as P, to the solids) P compds. MeCl was fed into a reactor containing 100 parts Si powder, 4 parts Cu powder, and 4000 ppm/mass Cu phosphide at 330° and 1.3 cm/s for 6 h to result in total methylchlorosilane formation rate 126 g/kg-Si/h, Me₂SiCl₂ content (to total methylchlorosilanes) 90.8 weight%, and MeSiCl₃/Me₂SiCl₂ ratio 0.048.

RX(1) OF 1 3 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-79-6, C 75-78-5
 CAT 7440-50-8 Cu, 12643-19-5 Copper phosphide
 NTE 330° 6 h

L74 ANSWER 26 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 127:137351 CASREACT
 TITLE: Improved preparation of dialkyldihalosilanes by direct process in fluidized bed reactor by recycling contact mass dust and controlling reactant gas feed rate
 INVENTOR(S): Tsumura, Hiroshi; Nakanishi, Tetsuo; Nakayama, Hiroshi; Satoh, Yukinori
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 11 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

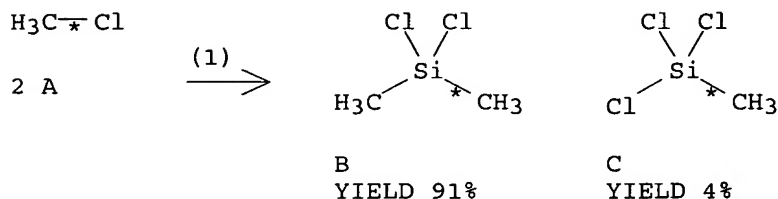
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

EP 784057	A1	19970716	EP 1997-300137	19970110
EP 784057	B1	20020904		
R: DE, FR, GB				
JP 09194490	A2	19970729	JP 1996-22111	19960112
US 5712405	A	19980127	US 1997-781207	19970110
PRIORITY APPLN. INFO.:			JP 1996-22111	19960112

OTHER SOURCE(S): MARPAT 127:137351

AB RnSiX_{4-n} (R = lower alkyl group with 1-4 carbons; X = halogen; n = 0-4) were prepared by using a fluidized bed reactor equipped with a feed line for reactant gas and a delivery line for product gas, charging the reactor with a contact mass comprising metallic Si powder and a Cu catalyst, and feeding a reactant gas containing an alkyl halide through the feed line into the reactor whereby the silane is formed by direct synthesis. A dust collector is connected to the delivery line for collecting the contact mass carried over with the product gas, which is fed back to the reactor. The feed of the reactant gas is controlled such that a linear velocity multiplied by a d. may range from 0.2-2 kg/m²·sec. A product mixture of 92.2% Me₂SiCl₂ and 3.8% MeSiCl₃ was obtained while maintaining a reaction rate of 720 kg/h when a fluidized bed with diameter of 80 mm and height of 1140 mm, a temperature of 290°, a contact mass of 100 parts of metallic Si powder with mean particle size of 60 μm and 2.7 parts of a catalyst mixture of metallic Cu, Zn and Sb powders, a reactant gas feed superficial linear velocity of 0.135 m/s and d. of 2.14 kg/m³, and a cyclone + filter for collecting dust were used; lower reaction rates and percentages of dichlorodimethylsilane were obtained using other conditions.

RX(1) OF 1 2 A ==> B + C



RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6
 CAT 7440-50-8 Cu, 7440-66-6 Zn, 7440-36-0 Sb
 SOL 7727-37-9 N₂
 NTE contact mass dust recycled; reactant gas feed rate controlled;
 fluidized bed reactor

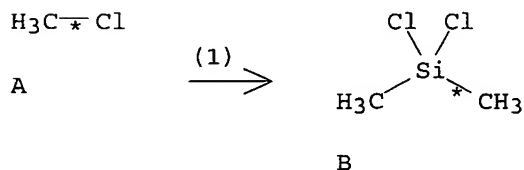
L74 ANSWER 27 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 126:186201 CASREACT
 TITLE: Preparation of alkyl halo silanes
 INVENTOR(S): Steiner, Matthias; Schild, Christoph; Degen, Bruno
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger., 4 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19532315	C1	19970206	DE 1995-19532315	19950901
EP 760371	A2	19970305	EP 1996-113288	19960820
EP 760371	A3	19980325		
EP 760371	B1	20021127		
R: DE, ES, FR, GB, NL				
US 5679823	A	19971021	US 1996-703242	19960826
AU 9664301	A1	19970306	AU 1996-64301	19960827
AU 703621	B2	19990325		
JP 09194488	A2	19970729	JP 1996-242508	19960827
CN 1149056	A	19970507	CN 1996-111459	19960830
CN 1066737	B	20010606		

DE 1995-19532315 19950901

AB Alkyl chloro silanes, of which Me_2SiCl_2 is the major component, are prepared by reaction of Si with alkyl halides (preferably MeCl) in presence of at least one catalyst (Rochow reaction) such that the reaction is performed in the presence of volatile or gaseous halo- and/or alkoxy-substituted sulfur compds., preferably SOCl_2 , SO_2Cl_2 , SCl_2 , and/or S_2Cl_2 , and, if necessary, other promoters such as Sn, Zn, P, and Al, alone or in combination and in elemental form or as a compound. In an example, 40 g silicon (particle size 71-160 μm), 3.2 g Cu catalyst, and 0.05 g ZnO were homogenized and then treated with MeCl at 2 bar at 1.8 L/h at 300° to give 6.1 g/h product, of which 1.9% is MeHSiCl_2 byproduct, 1.9% are high-boiling byproducts, and the $\text{MeSiCl}_3/\text{Me}_2\text{SiCl}_2$ (T/D) selectivity ratio is 0.070; addition of 10 μL SOCl_2 at the beginning of the reaction afforded an improved T/D of 0.066 and suppressed the byproducts to 1.5% MeHSiCl_2 and 1.3% high-boiling compds.

RX (1) OF 1 A ==> B



```

RX(1)      RCT  A 74-87-3
           RGT  C 7440-21-3 Si
           PRO  B 75-78-5
           CAT  7440-50-8 Cu, 1314-13-2 ZnO, 7719-09-7 SOCl2
           NTE  Other products formed

```

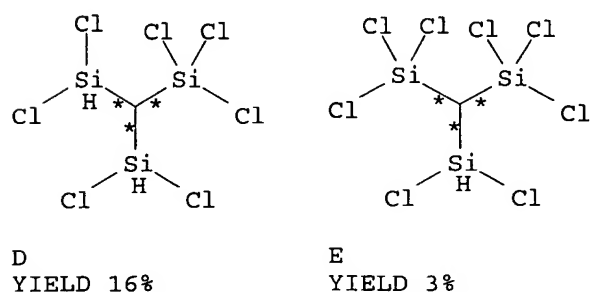
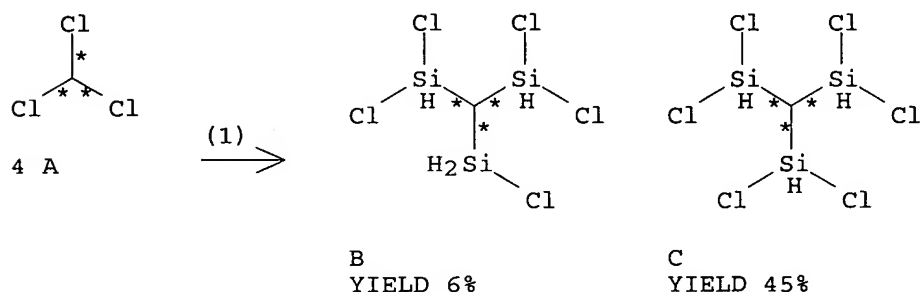
L74 ANSWER 28 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 126:60007 CASREACT
TITLE: Direct Synthesis of Tris(chlorosilyl)methanes
Containing Si-H Bonds
AUTHOR(S): Han, Joon Soo; Yeon, Seung Ho; Yoo, Bok Ryul; Jung, Il
Nam
CORPORATE SOURCE: Organometallic Chemistry Laboratory, Korea Institute
of Science and Technology, Seoul, 130-650, S. Korea
SOURCE: Organometallics (1997), 16(1), 93-96
CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Direct reaction of elemental Si with a mixture of CHCl_3 and HCl was studied in the presence of a Cu catalyst using a stirred reactor equipped with a spiral band agitator at various temps. from 280 to 340°. Tris(chlorosilyl)methanes ($\text{CH}(\text{SiH}_2\text{Cl})(\text{SiHCl}_2)_2$, $\text{CH}(\text{SiHCl}_2)_3$, $\text{CH}(\text{SiCl}_3)(\text{SiHCl}_2)_2$, $\text{CH}(\text{SiCl}_3)_2(\text{SiHCl}_2)$, and $\text{CH}(\text{SiCl}_3)_3$) with Si-H bonds were obtained as the major products along with byproducts of bis(chlorosilyl)methanes, derived from the reaction of Si with CH_2Cl_2 formed by the decomposition of CHCl_3 , and trichlorosilane and tetrachlorosilane produced from the reaction of elemental Si with HCl . The decomposition of CHCl_3 was suppressed and the production of polymeric carbosilanes reduced by adding HCl to CHCl_3 . The deactivation problem of elemental Si due to the decomposition of CHCl_3 and polycarbosilanes was eliminated. Cd was a good promoter for the reaction, while Zn is an inhibitor for this particular reaction.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 1 4 A ==> B + C + D +
E



RX(1) RCT A 67-66-3
RGT F 7440-21-3 Si, G 7647-01-0 HCl
PRO B 185308-41-2, C 158362-26-6, D 18170-91-7, E 18170-93-9
CAT 7440-43-9 Cd, 7440-50-8 Cu
NTE FLOW SYSTEM, Temp. AFFECTS YIELDS AND DISTRIBUTION, ADDING ZINC TO THE COPPER CATALYST INHIBITS THE REACTION, RATIO OF REACTANTS ALSO AFFECTS YIELD AND DISTRIBUTION OF PRODUCTS, OTHER PRODUCTS ALSO FORMED

L74 ANSWER 29 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 125:114743 CASREACT

TITLE: Effects of hydrogen chloride addition to the direct reaction of methylene chloride with elemental silicon

AUTHOR(S): Yeon, Seung Ho; Han, Joon Soo; Yoo, Bok Ryul; Jung, Il Nam

CORPORATE SOURCE: Organometallic Chemistry Lab., Korea Institute of Science and Technology, PO Box 131, Cheongryang, Seoul, 130-650, S. Korea

SOURCE: Journal of Organometallic Chemistry (1996), 516(1-2), 91-95

CODEN: JORCAI; ISSN: 0022-328X

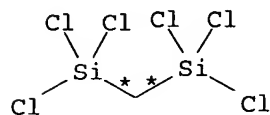
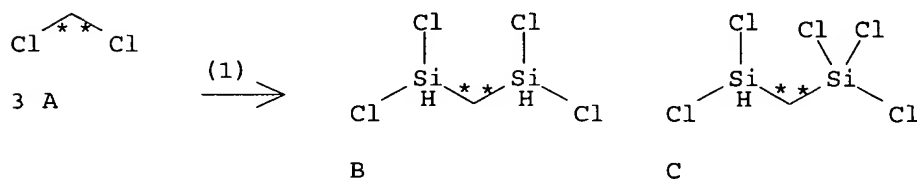
PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Direct synthesis of bis(chlorosilyl)methanes was restudied by reacting elemental Si simultaneously with CH₂Cl₂ and HCl in the presence of Cu catalyst using a stirred reactor equipped with a spiral band agitator at a carefully controlled temperature between 260 and 340°. Bis(dichlorosilyl)methane and (dichlorosilyl)(trichlorosilyl)methane were obtained as the major products and bis(trichlorosilyl)methane as a minor product along with trichlorosilane and tetrachlorosilane derived from the reaction between elemental Si and HCl. The decomposition of CH₂Cl₂ was suppressed and the production of polymeric carbosilanes reduced by adding HCl to the CH₂Cl₂ reactant. The optimum mixing ratio of CH₂Cl₂ and HCl for the direct synthesis of bis(silyl)methanes was 1 : 4. The deactivation problem of elemental Si owing to decompns. of CH₂Cl₂ and polycarbosilanes was eliminated. Cd was a good promoter for the reaction, while Zn is an inhibitor for this particular reaction.

RX(1) OF 1 3 A ==> B + C + D



D

RX(1) RCT A 75-09-2

RGT E 7440-21-3 Si, F 7440-43-9 Cd, G 7647-01-0 HCl

PRO B 18081-42-0, C 18171-02-3, D

4142-85-2

CAT 7440-50-8 Cu

NTE METHYL CHLORIDE ALSO DETECTED

L74 ANSWER 30 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 124:56297 CASREACT
 TITLE: Preparation of trissilylmethane derivatives
 INVENTOR(S): Tei, Kazuo; Nobu, Norihiro; Kan, Junshu
 PATENT ASSIGNEE(S): Korea Institute of Science and Technology, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

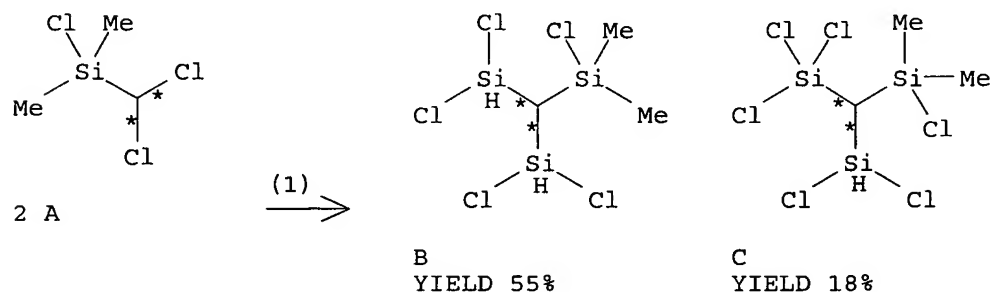
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07196670	A2	19950801	JP 1993-310854	19931210
JP 2951524	B2	19990920		

PRIORITY APPLN. INFO.: JP 1993-310854 19931210

OTHER SOURCE(S): MARPAT 124:56297

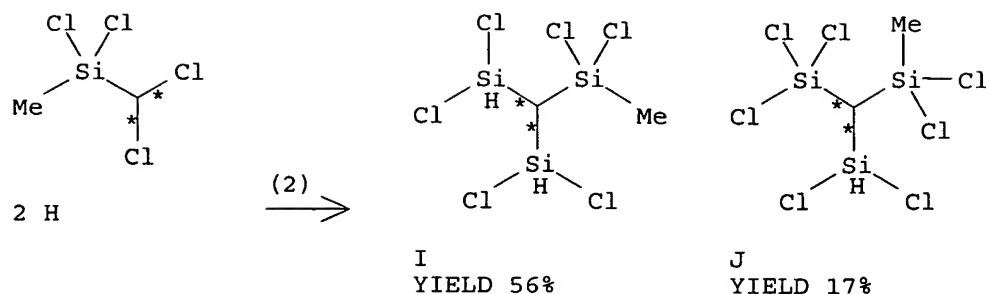
AB Claimed are R₁R₂R₃SiCHR₄R₅ [R₁ = R₂ = R₃ = methyl; or R₁ = Me, R₂ = R₃ = Cl; or R₁ = Cl, R₂ = R₃ = methyl; R₄ = R₅ = SiHCl₂; or R₄ = SiHCl₂, R₅ = SiCl₃]. Treatment of (dichloromethyl)dimethylchlorosilane with HCl and Si in the presence of Si/Cu catalyst and Cd at 280° gave 55.1% 1,1,3-trichloro-3-methyl-2-(dichlorosilyl)-1,3-disilabutane, 18.5% 1,1,3-trichloro-3-methyl-2-(trichlorosilyl)-1,3-disilabutane, and other minor byproducts.

RX(1) OF 3 2 A ==> B + C



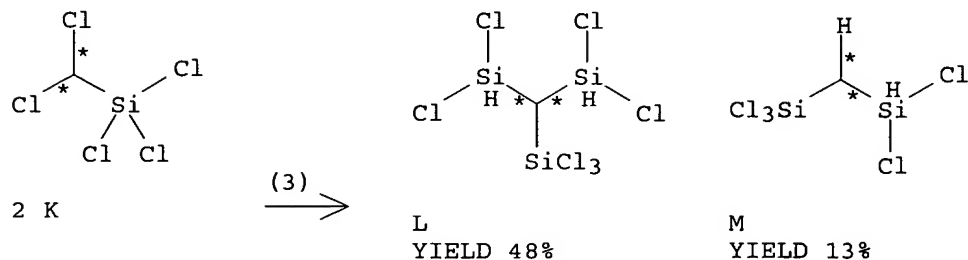
RX(1) RCT A 18171-59-0
 RGT D 7647-01-0 HCl, E 7440-21-3 Si
 PRO B 166970-80-5, C 166970-81-6
 CAT 7440-50-8 Cu, 7440-43-9 Cd
 NTE 280°

RX(2) OF 3 2 H ==> I + J



RX(2) RCT H 1558-31-2
 RGT D 7647-01-0 HCl, E 7440-21-3 Si
 PRO I 166970-83-8, J 166970-84-9
 CAT 7440-50-8 Cu, 7440-43-9 Cd
 NTE 280°

RX(3) OF 3 2 K ==> L + M



RX(3) RCT K 1558-24-3
 RGT D 7647-01-0 HCl, E 7440-21-3 Si
 PRO L 18170-91-7, M 18171-02-3
 CAT 7440-50-8 Cu, 7440-43-9 Cd
 NTE 280°

L74 ANSWER 31 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 123:257007 CASREACT
 TITLE: Monosilane preparation by aluminum trichloride catalyzed hydrogenation of high-boiling residue from organohalide reaction with silicon metalloid (direct process)
 INVENTOR(S): Ferguson, Stephen P.; Jarvis, Robert F., Jr.; Naasz, Brian M.; Oltmanns, Kimberly K.; Warrick, Gordon L.; Whiteley, Darrel L.
 PATENT ASSIGNEE(S): Dow Corning Corp., USA
 SOURCE: U.S., 5 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

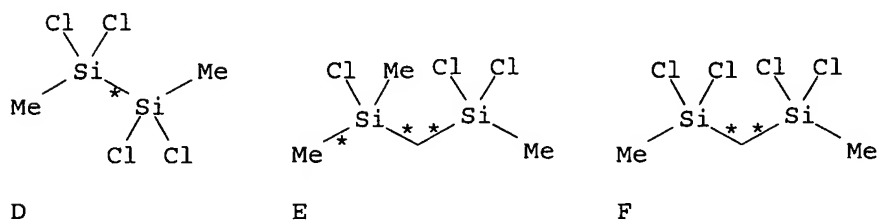
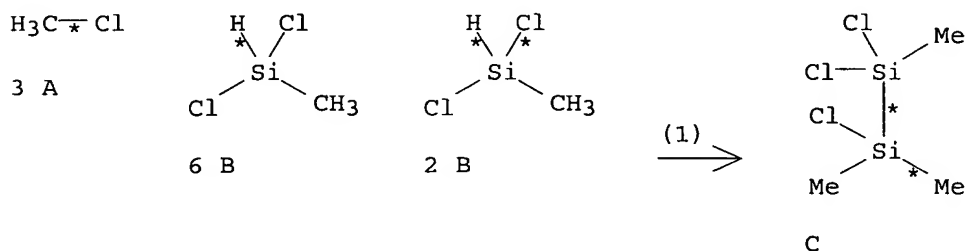
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5430168	A	19950704	US 1994-329758	19941027
EP 709389	A1	19960501	EP 1995-307516	19951023
EP 709389	B1	20000209		
R: DE, FR, GB, IT				
JP 08208666	A2	19960813	JP 1995-280860	19951027
JP 3650185	B2	20050518		

PRIORITY APPLN. INFO.: US 1994-329758 19941027

OTHER SOURCE(S): MARPAT 123:257007

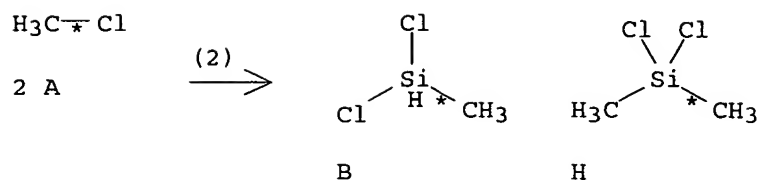
AB Monosilanes, $RyHzSiX4-y-z$ ($R = C1-C6$ alkyl, aryls, $C1-C6$ alkoxy, Me_3Si , trifluoropropyl; $X =$ halogen; $y = 0-3$; $z = 0-3$; $yr+z = 0-3$) were prepared from the high-boiling residue resulting from the reaction of organohalides with Si metalloid (direct process) by mixing an organotrihalosilane, $RSiX_3$, and the high-boiling residue in the presence of H_2 gas and a catalytic amount of $AlCl_3$. The present process results in consumption of the organotrihalosilane rather than a net increase which typically occurs in processes for hydrogenation of the high-boiling residue. At least a portion of the catalytic amount of $AlCl_3$ may be formed in situ during the direct process and isolation of the high-boiling residue. Thus, the high boiling residue from the reaction of $MeCl$ with Si was reacted with H_2 and $MeSiCl_3$ in the presence of 0.55 weight % $AlCl_3$ at 1252 psig and 325° for 2.8 h resulting in 91% conversion to $RyHzSiX4-y-z$; the result was 37% without the $AlCl_3$.

RX(1) OF 5 ...3 A + 8 B ==> C + D + E
+ F



RX(1) RCT A 74-87-3, B 75-54-7
 RGT G 7440-21-3 Si
 PRO C 13528-88-6, D 4518-98-3, E
 4519-04-4, F 4519-03-3
 NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(2) OF 5 2 A ==> B + H...



RX(2) RCT A 74-87-3

STAGE(1)

RGT G 7440-21-3 Si

STAGE(2)

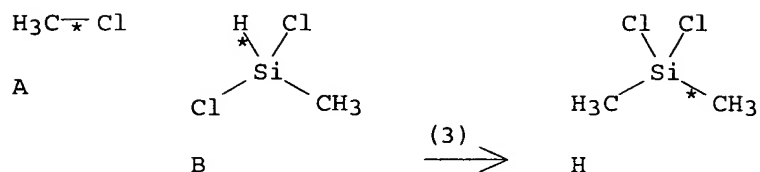
RGT I 1333-74-0 H2

CAT 7446-70-0 AlCl3

PRO B 75-54-7, H 75-78-5

NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(3) OF 5 ...A + B ==> H



RX(3) RCT A 74-87-3, B 75-54-7

STAGE(1)

RGT G 7440-21-3 Si

STAGE(2)

RGT I 1333-74-0 H2

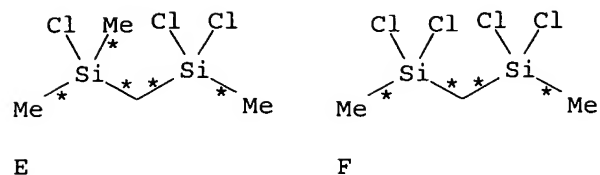
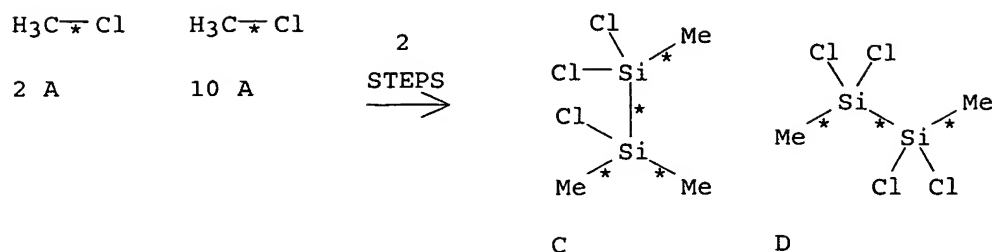
CAT 7429-90-5 Al

PRO H 75-78-5

NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(4) OF 5 COMPOSED OF RX(2), RX(1)

RX(4) 12 A ==> C + D + E + F



RX(2) RCT A 74-87-3

STAGE(1)

RGT G 7440-21-3 Si

STAGE(2)

RGT I 1333-74-0 H2

CAT 7446-70-0 AlCl3

PRO B 75-54-7, H 75-78-5

NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(1)

RCT A 74-87-3, B 75-54-7

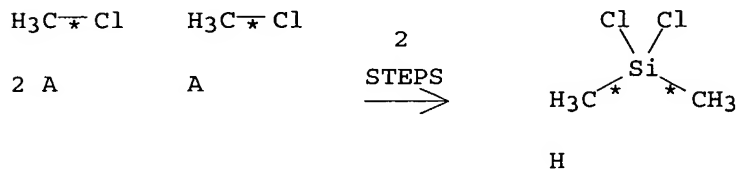
RGT G 7440-21-3 Si

PRO C 13528-88-6, D 4518-98-3, E 4519-04-4, F 4519-03-3

NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(5) OF 5 COMPOSED OF RX(2), RX(3)

RX(5) 3 A ==> H



RX(2) RCT A 74-87-3

STAGE(1)

RGT G 7440-21-3 Si

STAGE(2)

RGT I 1333-74-0 H2

CAT 7446-70-0 AlCl3

PRO B 75-54-7, H 75-78-5
NTE OTHER MINOR PRODUCTS ALSO ISOLATED

RX(3) RCT A 74-87-3, B 75-54-7

STAGE(1)
RGT G 7440-21-3 Si

STAGE(2)
RGT I 1333-74-0 H2
CAT 7429-90-5 Al

PRO H 75-78-5
NTE OTHER MINOR PRODUCTS ALSO ISOLATED

L74 ANSWER 32 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

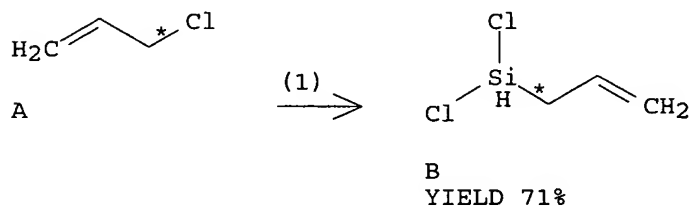
ACCESSION NUMBER: 121:301071 CASREACT
TITLE: Alkenylchlorosilanes and direct synthesis thereof
INVENTOR(S): Jung, Il N.; Yeon, Seung H.; Lee, Bong W.; Yoo, Bok R.
PATENT ASSIGNEE(S): Korea Institute of Science and Technology (KIST), S.
Korea
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5338876	A	19940816	US 1993-75134	19930610
KR 9502860	B1	19950327	KR 1992-10292	19920613
JP 07101962	A2	19950418	JP 1993-142014	19930614
JP 08032711	B4	19960329		
PRIORITY APPLN. INFO.:			KR 1992-10292	19920613

OTHER SOURCE(S): MARPAT 121:301071

AB Alkenylchlorosilanes R1CH:CHCH2SiCl2R2 (R1 represents H, Me, SiHCl2 SiCl3 or CH2SiCl3 and R2 represents H or Cl) were prepared by reacting Si metal with a mixed gas comprising of R3CH:CHCHClR4 (R3 represents H or Cl and R4 represents H, Me or CH2Cl) and HCl or R5Cl (R5 represents H, C1-C4 alkyl or CH2CH2Cl) in the presence of a Cu catalyst at 220-350°.

RX(1) OF 2 A ==> B

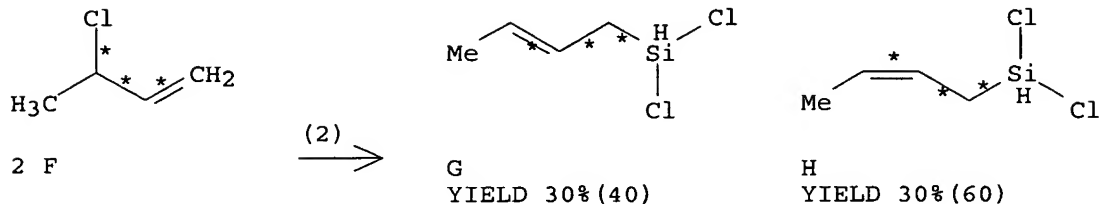


RX(1) RCT A 107-05-1
RGT C 7440-21-3 Si, D 7647-01-0 HCl
PRO B 3937-28-8

CAT 7440-50-8 Cu

NTE REACTOR AT 300 .DEGREES., OTHER PRODUCTS FORMED

RX(2) OF 2 2 F ==> G + H



RX(2) RCT F 563-52-0

RGT C 7440-21-3 Si, D 7647-01-0 HCl

PRO G 69238-76-2, H 69238-77-3

CAT 7440-50-8 Cu

NTE REACTOR AT 300.DEGREES., OTHER PRODUCTS FORMED

L74 ANSWER 33 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 121:57569 CASREACT

TITLE: Interaction of copper catalysts and Si(100) for the direct synthesis of methylchlorosilanes

AUTHOR(S): Floquet, Nicole; Yilmaz, Sefa; Falconer, John L.

CORPORATE SOURCE: Dep. Chem. Eng., Univ. Colorado, Boulder, CO, 80309-0424, USA

SOURCE: Journal of Catalysis (1994), 148(1), 348-68

CODEN: JCTLA5; ISSN: 0021-9517

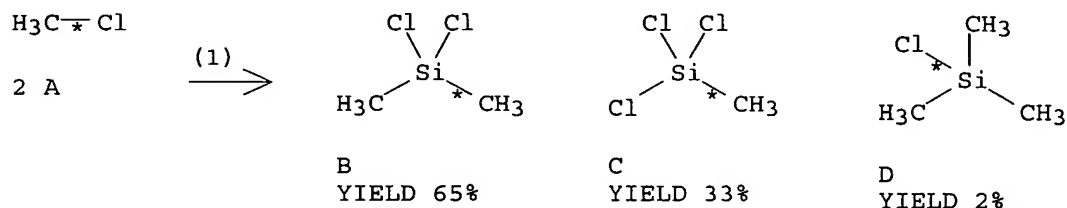
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Single crystal Si(100) surfaces with a native oxide layer were reacted with Me chloride to investigate the direct synthesis of dimethyldichlorosilane. These high purity silicon surfaces are excellent models of the reacting powders used industrially for direct synthesis. The oxide layer did not appear to inhibit reaction significantly. The copper catalyst was added to the surface by various methods, and the form of the catalyst necessary for selective reaction was determined. Reaction was carried out at atmospheric pressure in a recirculating batch reactor and the copper-silicon surfaces were characterized before and after reaction by XRD, SEM, EDS, AES, and optical microscopy. Catalysts that contained only metallic Cu or only Cu₂O did not catalyze dimethyldichlorosilane formation; both Cu and Cu₂O were needed. A mixture containing 82 wt% Cu and 18 wt% Cu₂O yielded the best selectivity [65 mol% (CH₃)₂SiCl₂, 33 mol% CH₃SiCl₃, and 2 mol% (CH₃)₃SiCl]. This selectivity is comparable to those obtained in fluidized bed reactors for copper-silicon powders without promoters. Both CuCl and Cu(HCOO)₂·2H₂O catalysts were also selective for dimethyldichlorosilane formation initially, but methylchlorosilane formed at longer reaction times. Copper formate dihydrate solution decomposed to form Cu/Cu₂O mixts. on Si(100). Because the Cu percentage was lower than 82%, however, and because formate decomposition also formed a Cu film on the surface, the selectivity was lower. Most of the catalysts reacted with silicon to form the stoichiometric alloy Cu₃Si, but some of the resulting surfaces did not react to form methylchlorosilanes. The competition between Cu₃Si formation and consumption to form methylchlorosilanes was different for the different catalysts. A correlation was seen between epitaxial growth of Cu₃Si on

Si(100) and poor selectivity for dimethyldichlorosilane formation. The most selective surfaces had a randomly oriented Cu₃Si phase. The Si(100) surface reacted by forming square pyramidal pits with Si(111) sides; the pits contained Cu₃Si.

RX(1) OF 1 2 A ==> B + C + D



RX(1) RCT A 74-87-3
 RGT E 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6, D 75-77-4
 CAT 7440-50-8 Cu, 1317-39-1 Cu₂O
 NTE Thermal; 598 K; Surface reaction

L74 ANSWER 34 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 120:323654 CASREACT

TITLE: Formation of organosilicon compounds. 112. The influence of reaction conditions on the reaction of (Cl₃Si)₂CCl₂ with silicon. The structures of 2,2,3,3,5,5,6,6-octachloro-1,4-bis(trichlorosilyl)-2,3,5,6-tetrasilabicyclo[2.1.1]hexane and 1,1,3,4,6,6-hexakis(trichlorosilyl)hexatetraene

AUTHOR(S): Fritz, G.; Beetz, A. G.; Matern, E.; Peters, K.; Peters, E. M.; von Schnering, H. G.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Karlsruhe, Karlsruhe, Germany

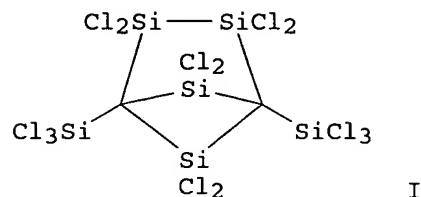
SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1994), 620(1), 136-44

CODEN: ZAACAB; ISSN: 0044-2313

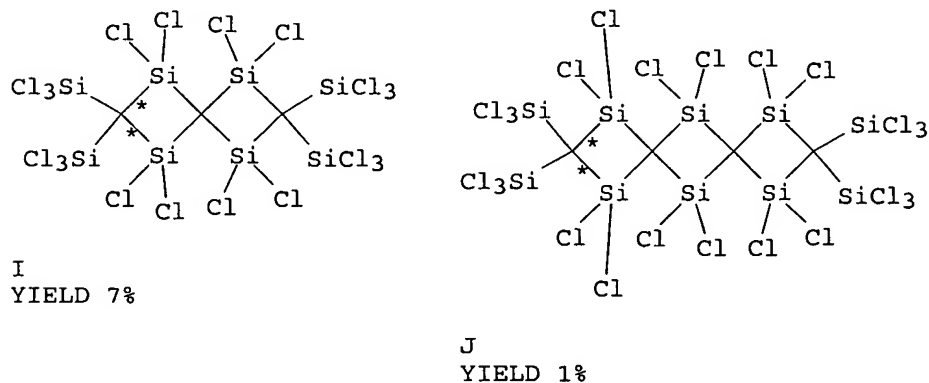
DOCUMENT TYPE: Journal

LANGUAGE: German

GI



AB While reactions of (Cl₃Si)₂CCl₂ 1 with Si(Cu) in a fluidized bed at 320° exclusively yield products by silylation of the CCl₂ group in 1, the reaction in a stirred bed preferably gives rise to chlorosilanes containing C-C double and triple bonds. The reaction of 1 with elemental copper by dehalogenation at carbon gives Cl₃SiC.tplbond.CSiCl₃ 3,

$$\text{RX(3) OF 3} \quad \text{7 A} \implies \text{H} + \text{B} + \text{C} + \text{I} + \text{J} + \text{K}$$


STRUCTURE

DIAGRAM

IS NOT

AVAILABLE

K

YIELD 2%

RX(3) RCT A 18157-09-0
RGT L 7440-21-3 Si
PRO H 4775-58-0, B 18038-55-6, C
18083-41-5, I 153110-29-3, J
153110-30-6, K 154960-13-1
CAT 7440-50-8 Cu
NTE thermal

L74 ANSWER 35 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 120:134609 CASREACT

TITLE: Formation of organosilicon compounds. 110. Reactions of dichlorobis(trichlorosilyl)methane and its silicon methylated derivatives as well as of chlorobis(trichlorosilyl)methane 1-chloro-1,1-bis(trichlorosilyl)ethane and 2,2-dichloropropane with silicon (copper catalyst)

AUTHOR(S): Fritz, G.; Lauble, S.; Befurt, R.; Peters, K.; Peters, E. M.; von Schnering, H. G.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Karlsruhe, Karlsruhe, Germany

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1993), 619(9), 1494-511
CODEN: ZAACAB; ISSN: 0044-2313

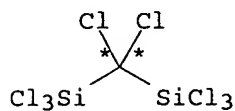
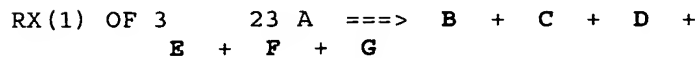
DOCUMENT TYPE: Journal

LANGUAGE: German

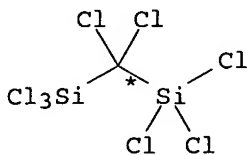
AB The reactions of (Cl₃Si)₂CCl₂ 1, its Si-methylated derivs. (Me₃Si)₂CCl₂ 8, Me₃SiCCl₂SiMe₂Cl 9, (ClMe₂Si)₂CCl₂ 10, Me₃SiCCl₂SiMeCl₂ 11, Cl₂MeSiCCl₂SiCl₃ 12 as well as of (Cl₃Si)₂CHCl 38, (Cl₃Si)₂CClMe 39 and of Me₂CCl₂ with Si (Cu cat.) in a fluid bed reactor (38 and 39 also in a stirred solid bed reactor) are presented. While 1 yields C(SiCl₃)₄ 2, the 1,1,3,3-tetrachloro-2,2,4,4-tetrakis(trichlorosilyl)-1,3-disilacyclobutane Si₆C₂Cl₁₆ 3 and the related C-spiro linked disilacyclobutanes Si₈C₃Cl₂₀ 4, Si₁₀C₄Cl₂₄ 5, Si₁₂C₅Cl₂₈ 6 and Si₁₄C₆Cl₃₂ 7, these types of compds. are not obtained starting from the Si-methylated derivs. 8, 9, 10 or 11. They produce a number of variously Si-chlorinated and -methylated tetrasila- and trisilamethanes. However, 12 forms Si-chlorinated trisilamethanes and the disilacyclobutanes Si₆C₂Cl₁₅Me 34, cis- and trans-Si₆C₂Cl₁₄Me₂ 35, as well as the spiro-linked disilacyclobutanes 4, Si₈C₃Cl₁₉Me 36 and Si₈C₃Cl₁₈Me₂ 37. (Cl₃Si)₂CHCl 38 mainly yields HC(SiCl₃)₃ 31 and also the disilacyclobutanes cis- and trans-(Cl₃Si)HC(SiCl₂)₂C(SiCl₃)H 41 and (Cl₃Si)₂C(SiCl₂)₂C(SiCl₃)H 45, the 1,3,5-trisilacyclohexane [(Cl₃Si)HCSiCl₂]₃ 44 as well as (Cl₃Si)₂CH-CH(SiCl₃)₂ and [(Cl₃Si)₂CH]₂SiCl₂. (Cl₃Si)₂CClMe 39 mainly yields (Cl₃Si)₂C:CH₂ and (Cl₃Si)₂CHMe besides HC(SiCl₃)₃, MeC(SiCl₃)₃ and Cl₂MeSiC(SiCl₃)₃. Me₂CCl₂ 59 mainly yields Me(Cl)C:CH₂, Me₂CHCl and HCl₂SiCMe₂SiCl₃ besides Me₂C(SiCl₃)₂ and Me₂C(SiCl₂H)₂. Crystal structures of compds. 3 and 4 were determined. The disilacyclobutane ring of compound 3 is planar, showing a

mean distance of $d(\text{Si}-\text{C}) = 191.8 \text{ pm}$ and the usual deformations of endocyclic angles: $\alpha_{\text{Si}} = 94.2^\circ > 85.8^\circ = \alpha_{\text{C}}$.

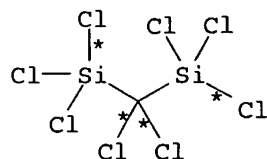
The spiro-linked disilacyclobutane rings of compound 4 are slightly folded by a mean angle of 19.0° .



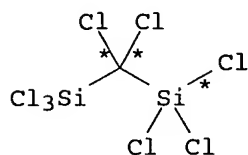
A



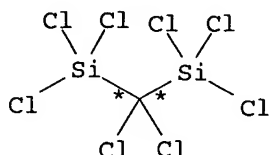
A



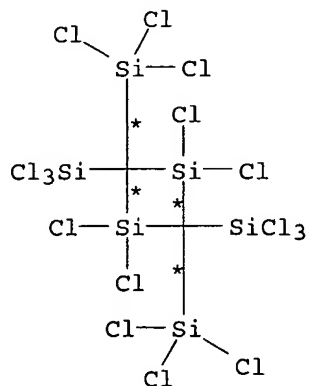
10 A



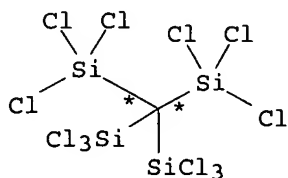
9 A



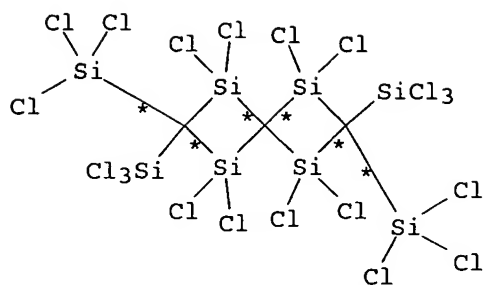
2 A



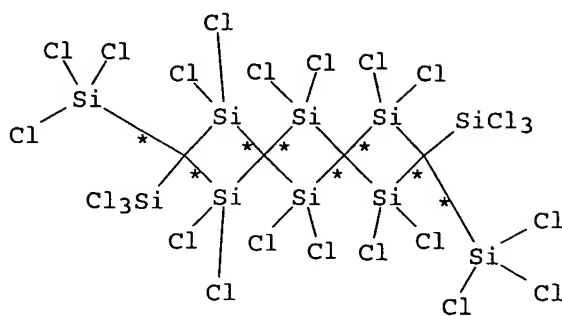
B



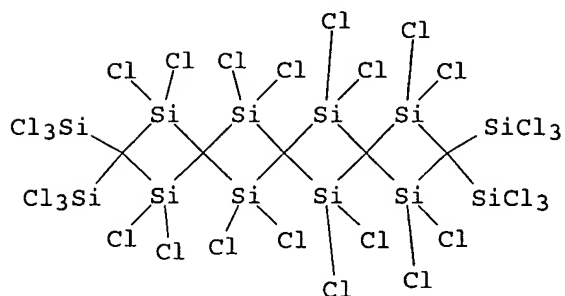
C



D



E



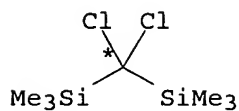
F

STRUCTURE
DIAGRAM
IS NOT
AVAILABLE

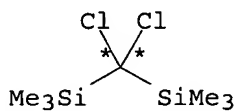
G

RX(1) RCT A 18157-09-0
RGT H 7440-21-3 Si, I 7440-50-8 Cu
PRO B 18038-57-8, C 4775-58-0, D
153110-29-3, E 153110-30-6, F
153110-31-7, G 153110-32-8
NTE thermal, 300°

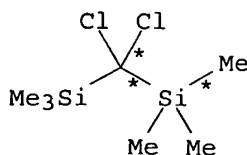
RX(2) OF 3 4 J ==> K + L + M + N +
O



J

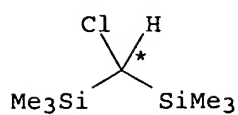


2 J

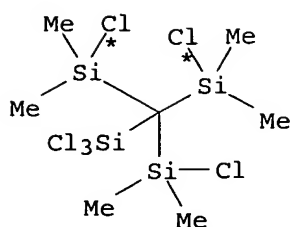


J

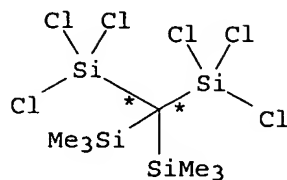
(2)
→



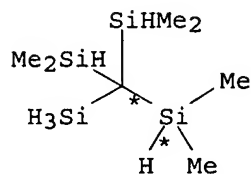
K



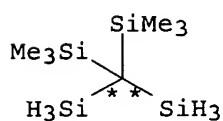
L



M



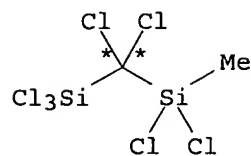
N



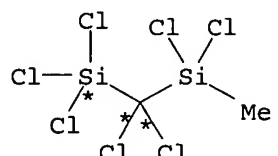
O

RX(2) RCT J 15951-41-4
 RGT H 7440-21-3 Si, I 7440-50-8 Cu
 PRO K 5926-35-2, L 153110-33-9, M 153110-34-0, N 153110-57-7, O 153110-58-8
 NTE thermal, 300°

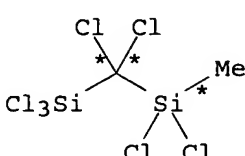
RX(3) OF 3 12 P ==> Q + R + S +
 T + U + V



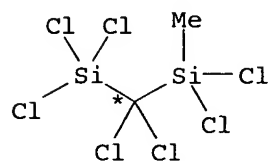
P



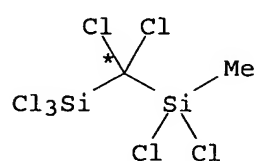
2 P



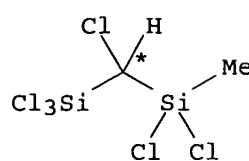
3 P



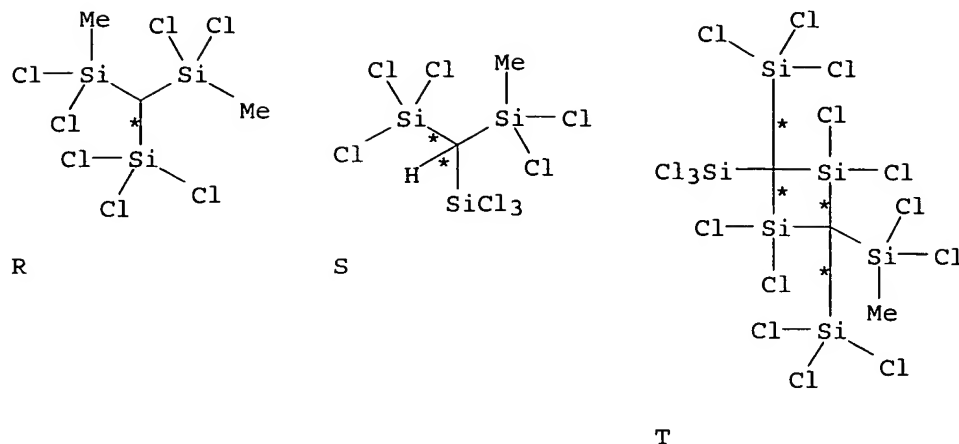
5 P



P



Q



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

RX(3) RCT P 70058-64-9
 RGT H 7440-21-3 Si, I 7440-50-8 Cu
 PRO Q 153110-43-1, R 153110-44-2, S
 18077-04-8, T 153110-47-5, U
 153110-49-7, V 153110-50-0
 NTE thermal, 300°, other products were also obsd.

L74 ANSWER 36 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 120:30807 CASREACT

TITLE: Problems and solutions involved in direct synthesis of allylchlorosilanes

AUTHOR(S): Yeon, Seung Ho; Lee, Bong Woo; Kim, Sun Il; Jung, Il Nam

CORPORATE SOURCE: Organomet. Chem. Lab., Korea Inst. Sci. Technol., Seoul, 130-650, S. Korea

SOURCE: Organometallics (1993), 12(12), 4887-91

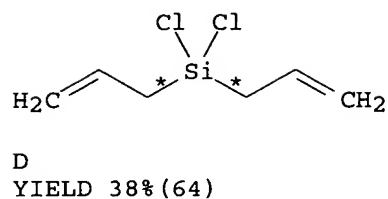
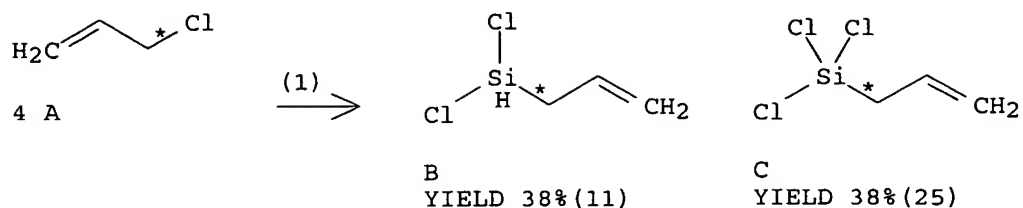
CODEN: ORGND7; ISSN: 0276-7333

DOCUMENT TYPE: Journal

LANGUAGE: English

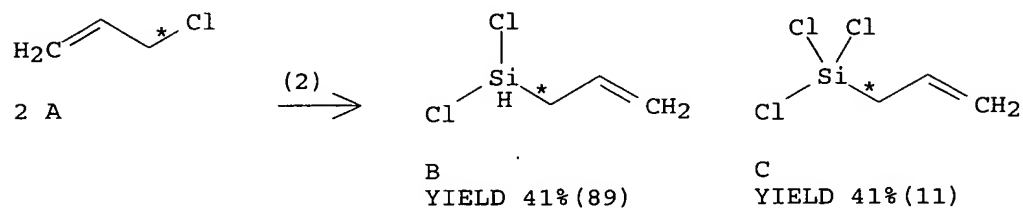
AB Direct synthesis of allylchlorosilanes was reinvestigated by reacting elemental silicon simultaneously with allyl chloride and hydrogen chloride in the presence of copper catalyst using a stirred reactor equipped with a spiral band agitator at a carefully controlled temperature between 220 and 320°. Allyldichlorosilane was obtained as the major product and allyltrichlorosilane as a minor product along with trichlorosilane and tetrachlorosilane derived from the reaction between elemental silicon and hydrogen chloride, but diallyldichlorosilane was obtained only in a trace amount. The decomposition of allyl chloride was suppressed and the production of diallyldichlorosilane reduced by adding hydrogen chloride to the allyl chloride reactant. The polymerization problem in the distillation process of the products due to diallyldichlorosilane was eliminated. Cadmium was a good promoter for the reaction, while zinc was found to be an inhibitor.

RX(1) OF 3 4 A ==> B + C + D



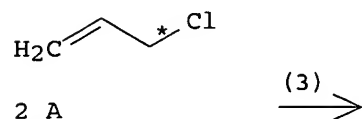
RX(1) RCT A 107-05-1
 RGT E 7440-21-3 Si
 PRO B 3937-28-8, C 107-37-9, D 3651-23-8
 CAT 7440-50-8 Cu
 NTE stirred reactor equipped with spiral band agitator, other products formed

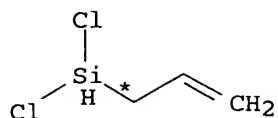
RX(2) OF 3 2 A ==> B + C



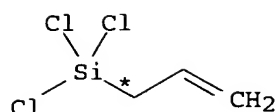
RX(2) RCT A 107-05-1
 RGT E 7440-21-3 Si, G 7647-01-0 HCl
 PRO B 3937-28-8, C 107-37-9
 CAT 7440-50-8 Cu
 NTE stirred reactor equipped with spiral band agitator, other products formed

RX(3) OF 3 2 A ==> B + C





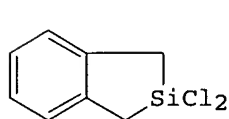
B
YIELD 47%



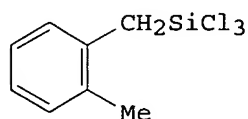
C

RX(3) RCT A 107-05-1
RGT E 7440-21-3 Si, G 7647-01-0 HCl
PRO B 3937-28-8, C 107-37-9
CAT 7440-50-8 Cu, 7440-43-9 Cd
NTE stirred reactor equipped with spiral band agitator, other products formed

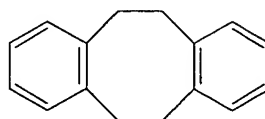
L74 ANSWER 37 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 119:226044 CASREACT
TITLE: Direct synthesis of 2,2-dichloro-2-silaindan
AUTHOR(S): Jung, Il Nam; Yeon, Seung Ho; Han, Joon Soo
CORPORATE SOURCE: Organometallic Chem. Lab., Korea Inst. Sci. Technol., Seoul, 130-650, S. Korea
SOURCE: Bulletin of the Korean Chemical Society (1993), 14(3), 315-16
CODEN: BKCSDE; ISSN: 0253-2964
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I



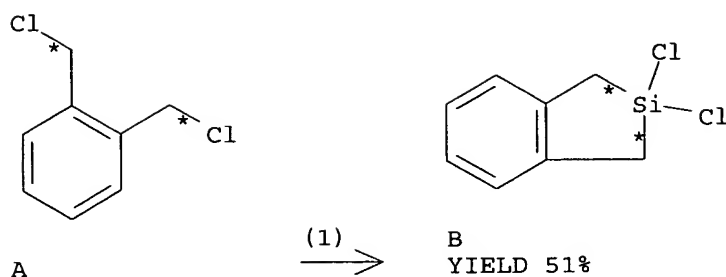
II



III

AB A convenient direct synthesis of 2,2-dichloro-2-silaindan (I) comprises reacting metallic Si with 1,2-(ClCH₂)₂C₆H₄ in the presence of Cu catalyst in a stirred reactor equipped with a spiral band agitator at 260-320°. At 280°, compound I was prepared in 51% yield along with 2% dechlorinated derivative II, 3% o-xylene, 3% tetrahydrodibenzocyclooctene III, and 41% decomposition products.

RX(1) OF 1 A ==> B



RX(1) RCT A 612-12-4
 RGT C 7440-21-3 Si
 PRO B 20151-87-5
 CAT 7440-50-8 Cu
 SOL 108-88-3 PhMe
 NTE 280° in reactor, other products formed

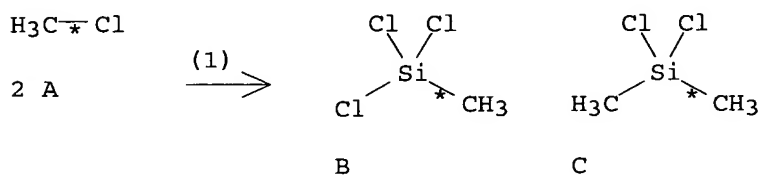
L74 ANSWER 38 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 119:203627 CASREACT
 TITLE: Method for making organohalosilanes
 INVENTOR(S): Webb, Steven W.; Ritzer, Alan; Neely, John D.
 PATENT ASSIGNEE(S): General Electric Co., USA
 SOURCE: U.S., 3 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5243061	A	19930907	US 1992-987872	19921209
EP 602850	A1	19940622	EP 1993-309666	19931202
R: DE, FR, GB				
JP 06239874	A2	19940830	JP 1993-307606	19931208
JP 3563425	B2	20040908		

PRIORITY APPLN. INFO.: US 1992-987872 19921209

AB Organohalosilanes were prepared by reaction between an organic halide and a mixture of silicon powder and spent contact mass generated during the production of organohalosilanes. Thus, treating the above mixture with MeCl in the presence of copper/brass catalyst gave MeSiCl₃ and Me₂SiCl₂.

RX(1) OF 1 2 A ==> B + C



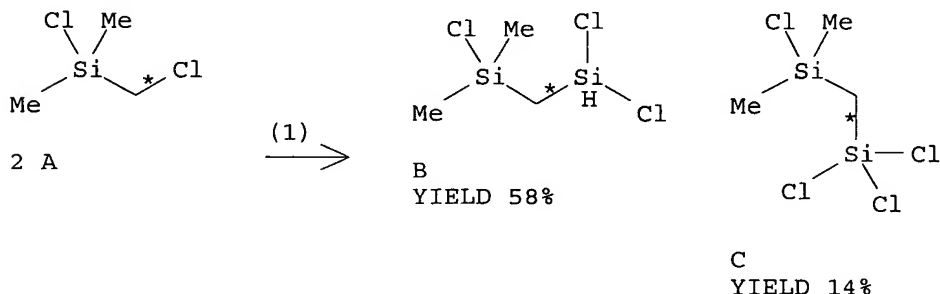
RX(1) RCT A 74-87-3
 RGT D 7440-21-3 Si
 PRO B 75-79-6, C 75-78-5
 NTE spent contact mass as addn. reactant

L74 ANSWER 39 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 119:72666 CASREACT
 TITLE: Direct synthesis of bis(silyl)methanes containing silicon-hydrogen bonds
 AUTHOR(S): Jung, Il Nam; Yeon, Seung Ho; Han, Joon Soo
 CORPORATE SOURCE: Organomet. Chem. Lab., Korea Inst. Sci. Technol., Seoul, 130-650, S. Korea
 SOURCE: Organometallics (1993), 12(6), 2360-2
 CODEN: ORGND7; ISSN: 0276-7333
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A series of Si-H-containing bis(silyl)methanes has been prepared by reacting directly elemental silicon simultaneously with (chloromethyl)silanes and hydrogen chloride in the presence of a copper catalyst using a stirred reactor equipped with a spiral band agitator at carefully controlled temps. between 280 and 340°. Bis(silyl)methanes containing dichlorosilyl groups, e.g., Me₃SiCH₂SiCl₂H, were obtained as the major products and trichlorosilyl-group-containing bis(silyl)methanes as minor products. Cadmium was a good promoter for the reaction, whereas zinc was found to be an inhibitor.

RX(1) OF 1 2 A ==> B + C



RX(1) RCT A 1719-57-9
 RGT D 7647-01-0 HCl, E 7440-21-3 Si
 PRO B 54296-27-4, C 16538-60-6
 CAT 7440-50-8 Cu

L74 ANSWER 40 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

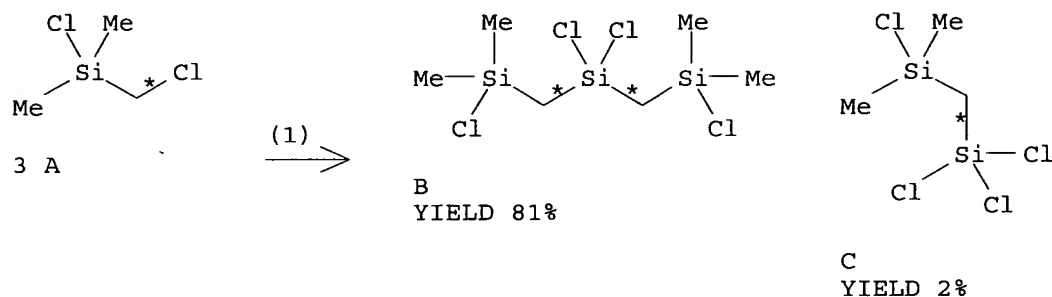
ACCESSION NUMBER: 116:174424 CASREACT
 TITLE: Direct synthesis of methylchlorosilaalkanes
 INVENTOR(S): Jung, Il Nam; Lee, Gyu Hwan; Yeon, Seung Ho; Suk, Mi Yeon
 PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea
 SOURCE: U.S., 7 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5075477	A	19911224	US 1991-697165	19910508
DE 4111822	C1	19920402	DE 1991-4111822	19910411
JP 06340676	A2	19941213	JP 1991-262501	19910917
JP 08019140	B4	19960228		
PRIORITY APPLN. INFO.:			KR 1991-1055	19910122
OTHER SOURCE(S):			MARPAT 116:174424	

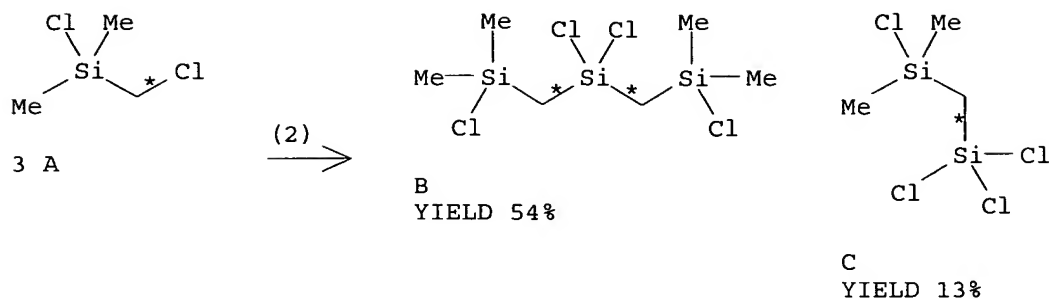
AB A novel and improved method for simultaneously producing 2,4,6-trisilaheptane, MeSiR₂CH₂SiCl₂CH₂SiR₂Me, and 1,3-disilabutane, MeSiR₂CH₂SiCl₃ (R = Cl, Me), the starting materials for the preparation of silicon polymers, is claimed. The method consists of reacting Si with chloromethylsilanes, MeSiR₂CH₂Cl, at 250-350° in the presence of Cu as catalyst exclusively or together with Cd powder as cocatalyst. Thus, 100 g of Si/Cu contact mixture obtained from Si and CuCl was charged in an agitating-type reaction bath. After increasing the temperature in the reactor to 320°, 189 g Me₂SiClCH₂Cl was added through a dropping funnel while N₂ was also blown at the rate of 60 mL/min. Workup of the reaction mixture after completion gave 54.2% Me₂SiClCH₂SiCl₂CH₂SiMe₂Cl along with 12.7% Cl₃SiCH₂SiMe₂Cl and 33.1% byproduct.

RX(1) OF 2 3 A ==> B + C



RX(1) RCT A 1719-57-9
 RGT D 7440-21-3 Si
 PRO B 38050-12-3, C 16538-60-6
 CAT 7440-50-8 Cu, 7440-43-9 Cd

RX(2) OF 2 3 A ==> B + C



RX(2) RCT A 1719-57-9
 RGT D 7440-21-3 Si
 PRO B 38050-12-3, C 16538-60-6
 CAT 7758-89-6 CuCl
 NTE thermal, 320°

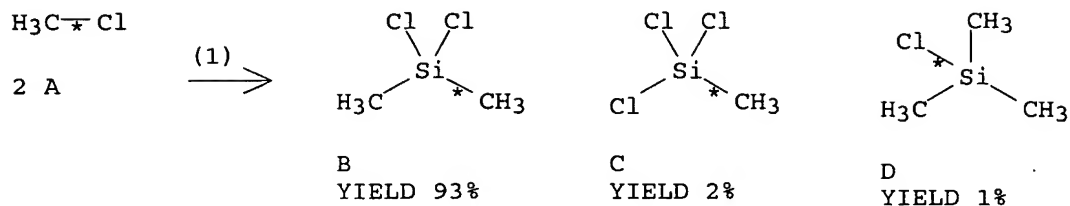
L74 ANSWER 41 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 116:152011 CASREACT
 TITLE: Process and catalyst containing a lanthanide compound
 as promoter for the direct synthesis of
 dimethyldichlorosilane
 INVENTOR(S): Plagne, Jean Louis; Godde, Guy; Cattoz, Roland
 PATENT ASSIGNEE(S): Rhone-Poulenc Chimie SA, Fr.
 SOURCE: Eur. Pat. Appl., 13 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 470020	A1	19920205	EP 1991-420283	19910730
EP 470020	B1	19950104		
R: DE, DK, ES, FR, GB, GR				
FR 2665446	A1	19920207	FR 1990-10011	19900731
FR 2665446	B1	19921127		
AU 9179317	A1	19920206	AU 1991-79317	19910625
BR 9103211	A	19920526	BR 1991-3211	19910726
JP 04288088	A2	19921013	JP 1991-211452	19910730
JP 07002753	B4	19950118		
US 5117030	A	19920526	US 1991-738540	19910731

PRIORITY APPLN. INFO.:

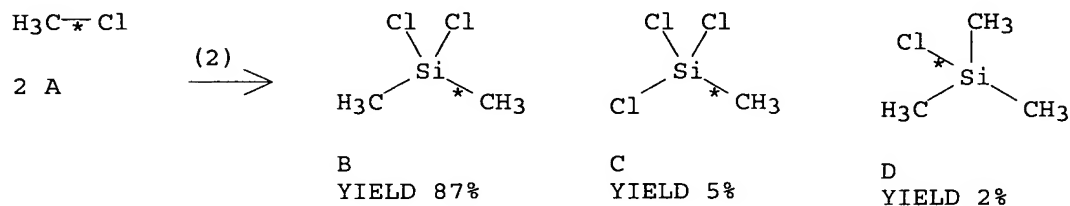
AB Me₂SiCl₂ was prepared by reaction of MeCl and Si over a catalyst consisting of Cu or a Cu compound and promoted by 10-1000 ppm Sn or Sb (or Sn or Sb compds.), 0-3% metallic Zn or Zn compound), 0-3% metallic Zn or Zn compound, 0.01-2% lanthanide compound, and 0.05-2% alkali metal or alkali metal compound. Thus, 210 g Si was reacted with MeCl (16 L/h) at 345° for 1 h, then at 315° for the duration of the reaction, in the presence of a catalyst consisting of 16.3 g CuCl, 0.38 g of a bronze containing 10% (by weight) Sn, 1.60 g ZnCl₂, and 1.69 g K₃LaCl₆. The yields were: 93.6% Me₂SiCl₂, 2.8% MeSiCl₃, and 1.7% Me₃SiCl, with 58% conversion of Si.

RX(1) OF 3 2 A ==> B + C + D



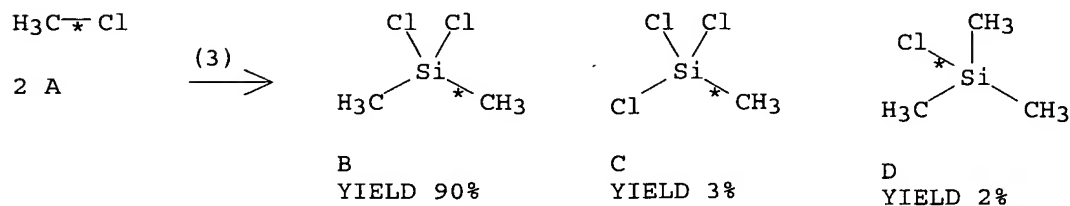
RX(1) RCT A 74-87-3
 RGT E 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6, D 75-77-4
 CAT 7758-89-6 CuCl, 7440-31-5 Sn, 7646-85-7 ZnCl₂, 13600-81-2
 Lanthanate(3-), hexachloro-, tripotassium, (OC-6-11)-

RX(2) OF 3 2 A ==> B + C + D



RX(2) RCT A 74-87-3
 RGT E 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6, D 75-77-4
 CAT 7758-89-6 CuCl, 7440-31-5 Sn, 7646-85-7 ZnCl₂, 10099-58-8 LaCl₃

RX(3) OF 3 2 A ==> B + C + D



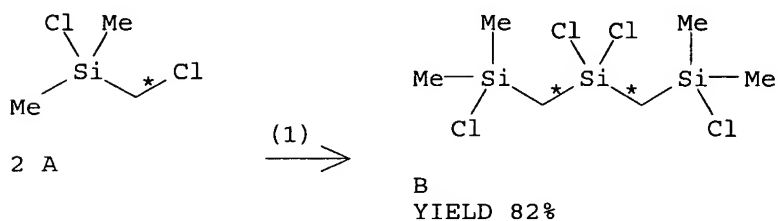
RX(3) RCT A 74-87-3
 RGT E 7440-21-3 Si
 PRO B 75-78-5, C 75-79-6, D 75-77-4
 CAT 7758-89-6 CuCl, 7440-31-5 Sn, 7646-85-7 ZnCl₂, 7447-40-7 KCl

L74 ANSWER 42 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 115:183439 CASREACT
 TITLE: Direct synthesis of trisilaalkanes
 AUTHOR(S): Jung, Il Nam; Lee, Gyu Hwan; Yeon, Seung Ho; Suk, Mi

Yeon
 CORPORATE SOURCE: Organomet. Chem. Lab., Korea Inst. Sci. Technol.,
 Seoul, 130-650, S. Korea
 SOURCE: Bulletin of the Korean Chemical Society (1991), 12(4),
 445-9
 CODEN: BKCSDE; ISSN: 0253-2964
 DOCUMENT TYPE: Journal
 LANGUAGE: English

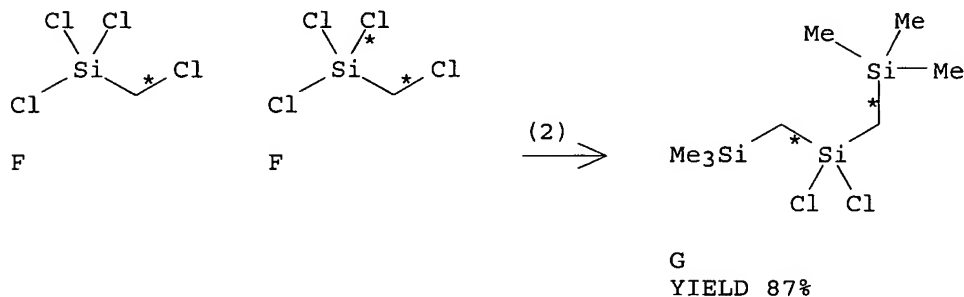
AB A series of trisilaalkanes, e.g., $\text{Me}_2\text{SiClCH}_2\text{SiCl}_2\text{CH}_2\text{SiMe}_2\text{Cl}$, has been prepared in high yields by the direct reaction of α -chloromethylsilanes with elemental silicon in the presence of copper catalyst using a reactor equipped with a spiral band agitator at the carefully controlled temperature between 280 and 340°. Disilaalkane compds. were obtained as minor products. Cadmium was a good promotor for the reactions, while zinc was an inhibitor.

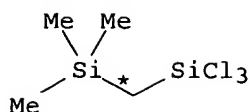
RX(1) OF 3 2 A ==> B



RX(1) RCT A 1719-57-9
 RGT C 7440-21-3 Si
 PRO B 38050-12-3
 CAT 7758-89-6 CuCl, 7440-43-9 Cd
 NTE 280-340°

RX(2) OF 3 2 F ==> G + H

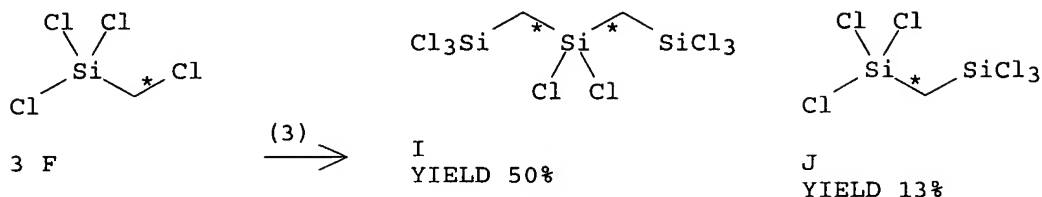




H
YIELD 6%

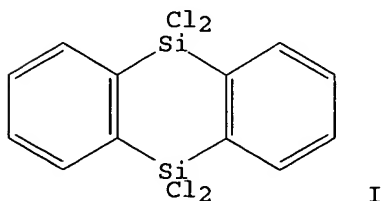
RX(2) RCT F 1558-25-4
RGT C 7440-21-3 Si
PRO G 18420-19-4, H 16538-62-8
CAT 7758-89-6 CuCl
NTE 280-340°

RX(3) OF 3 3 F ==> I + J



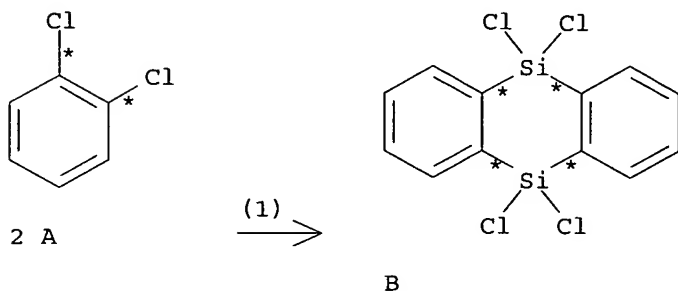
RX(3) RCT F 1558-25-4
RGT C 7440-21-3 Si
PRO I 16538-67-3, J 4142-85-2
CAT 7758-89-6 CuCl
NTE 280-340°

L74 ANSWER 43 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 115:114601 CASREACT
TITLE: Silicon-containing heterocyclic compounds. LVII.
Direct synthesis of 9,9,10,10-tetrachloro-9,10-disila-
9,10-dihydroanthracene and its derivatives
AUTHOR(S): Chernyshev, E. A.; Komalenkova, N. G.; Shashkov, I. A.
CORPORATE SOURCE: Gos. Nauchno-Issled. Inst. Khim. Tekhnol. Elementoorg.
Soedin., USSR
SOURCE: Zhurnal Obshchei Khimii (1991), 61(3), 758-62
CODEN: ZOKHA4; ISSN: 0044-460X
DOCUMENT TYPE: Journal
LANGUAGE: Russian
GI



AB Two methods are reported for increasing the degree of depletion of solid reagent (Si/Cu) and improving the yield of the title compound (I) in its direct synthesis involving reaction of o-dichlorobenzene (II) with Si/Cu at 520-540°: (i) periodic treatment of the solid reagent surface with HCl in the absence of II (increasing depletion of Si/Cu from 20-25% to 60-70%), and (ii) simultaneous introduction of II and 10% hexachlorodisilane (40-50% increase in the rate of production of I).

RX(1) OF 1 2 A ==> B



RX(1) RCT A 95-50-1
 RGT C 7440-21-3 Si, D 13465-77-5 Si₂Cl₆
 PRO B 32962-41-7
 CAT 7440-50-8 Cu

L74 ANSWER 44 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 114:164496 CASREACT
 TITLE: Preparation of alkylhalosilanes via copper catalyzed and metal promoted reaction of silicon with alkyl halide
 INVENTOR(S): Degen, Bruno; Felder, Kurt; Licht, Elke; Wagner, Gebhard
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Eur. Pat. Appl., 6 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 416406	A2	19910313	EP 1990-116308	19900825
EP 416406	A3	19920527		
EP 416406	B1	19961120		
R: DE, ES, FR, GB, IT				
DE 3929865	A1	19910314	DE 1989-3929865	19890908
US 5068385	A	19911126	US 1990-570089	19900820
ES 2094739	T3	19970201	ES 1990-116308	19900825
JP 03109391	A2	19910509	JP 1990-232611	19900904
JP 2925273	B2	19990728		
CA 2024803	AA	19910309	CA 1990-2024803	19900906

BR 9004428	A	19910910	BR 1990-4428	19900906
ZA 9007131	A	19910731	ZA 1990-7131	19900907
DD 298930	A5	19920319	DD 1990-343894	19900907

PRIORITY APPLN. INFO.:

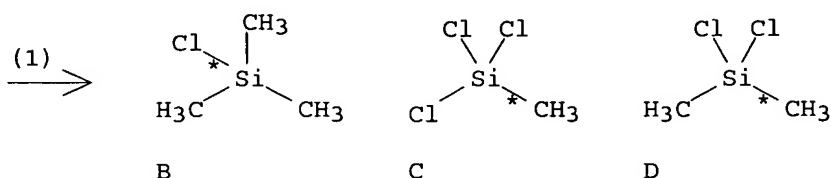
DE 1989-3929865 19890908

AB Process for the preparation of alkylhalosilanes by the reaction of Si with alkyl halides in the presence of copper as catalyst and promoters is claimed. The promoters are P as well as P compds. in combination with In as well as indium compds. and/or Al as well as Al compds. Thus, reaction of Si (40g) with MeCl (2 bar) at 300° in the presence of Cu (3.2g), ZnO (0.05g), In (0.004g), and P (0.056g) gave 1.7% of Me₃SiCl, 0.017% mixture of MeSiCl₃/Me₂SiCl₂, and 3.7% of polysilanes and others at the production rate of 6.0 g/h.

RX(1) OF 1 2 A ==> B + C + D

H₃C- $\overline{\text{C}}$ -Cl

2 A



RX(1) RCT A 74-87-3
 RGT E 7723-14-0 P, F 7440-74-6 In, G 1314-13-2 ZnO, H 7440-21-3 Si
 PRO B 75-77-4, C 75-79-6, D 75-78-5
 CAT 7440-50-8 Cu
 NTE 300°, Thermal

L74 ANSWER 45 OF 46 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 111:39442 CASREACT

TITLE: Direct formation of chlorodimethylsilane from silicon and chloroform

AUTHOR(S): Magrini, Kimberly A.; Falconer, John L.; Koel, Bruce E.

CORPORATE SOURCE: Dep. Chem. Eng., Univ. Colorado, Boulder, CO, 80309-0424, USA

SOURCE: Journal of Physical Chemistry (1989), 93(14), 5563-8
CODEN: JPCHAX; ISSN: 0022-3654

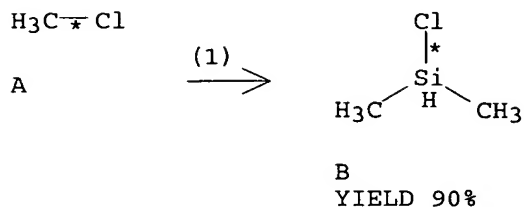
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A Cu-catalyzed reaction procedure was found for the selective formation of Me₂HSiCl from the direct reaction of MeCl with solid Si. The new procedure is a two-step process. A Cu/Si sample is prepared by evaporating Cu onto clean polycryst. Si under ultrahigh vacuum, and the Cu/Si surface is first activated by exposure to 10% HSiCl₃/MeCl at 598 K. After the HSiCl₃/MeCl mixture is evacuated from the reactor, the activated Cu/Si surface is reacted in fresh MeCl. For low surface concns. of Cu, the partially hydrogenated silane, Me₂HSiCl, is selectively produced. Cl₃SiH was also found to activate polycryst. Si (in the absence of Cu) for production of highly chlorinated methylchlorosilanes at a much higher rate than on the Cu/Si surface, but with poor selectivity to Me₂HSiCl. All reactions are carried out at atmospheric pressure in a reactor that is attached to an ultrahigh-vacuum chamber. This allows surface anal. by Auger electron spectroscopy, which detected SiCl_x on reacted surfaces. These SiCl_x sites, which appear necessary for methylchlorosilane formation, are

apparently formed during activation by HSiCl₃.

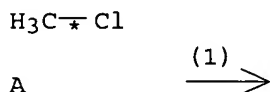
RX(1) OF 1 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 1066-35-9
 CAT 7440-50-8 Cu

L74 ANSWER 46 OF 46 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 106:214018 CASREACT
 TITLE: Catalysis of the Rochow direct process
 AUTHOR(S): Ward, W. J.; Ritzer, A.; Carroll, K. M.; Flock, J. W.
 CORPORATE SOURCE: Corp. Res. Dev. Cent., General Electric Co.,
 Schenectady, NY, 12301, USA
 SOURCE: Journal of Catalysis (1986), 100(1), 240-9
 CODEN: JCTLA5; ISSN: 0021-9517
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Variables affecting Me₂SiCl₂ (I) synthesis from Si and MeCl were examined
 Fluidized and stirred bed reactors were used. Trace quantities of Sn
 affect the process profoundly, and the effects of Sn and Zn were
 synergistic. A catalyst system consisting of Cu, Zn, and Sn was
 discovered which yielded 90% I with nearly complete Si utilization. This
 is a major improvement over the best previously reported performance.

RX(1) OF 1 A ==> B



RX(1) RCT A 74-87-3
 RGT C 7440-21-3 Si
 PRO B 75-78-5

CAT 7440-50-8 Cu, 7440-66-6 Zn, 7440-31-5 Sn

L75 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:413565 CAPLUS

DOCUMENT NUMBER: 142:83329

TITLE: Refractive index at infrared wavelengths and dielectric permittivity of pure and fluorinated silicon dioxide from measurements of their thin films deposited on Si

AUTHOR(S): Power, G.; Vij, J. K.; Shaw, M.

CORPORATE SOURCE: Department of Electronic and Electrical Engineering, Trinity College, University of Dublin, Dublin, 2, Ire.

SOURCE: Journal of Physics D: Applied Physics (2004), 37(9), 1362-1370

CODEN: JPAPBE; ISSN: 0022-3727

PUBLISHER: Institute of Physics Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Fourier-transform IR (FTIR) spectra of silicon dioxide (SiO₂) and fluorinated silicon dioxide (SiOF) deposited on bare Si wafers have been recorded and the interference fringes in the spectra have been used to estimate the refractive index, n , of the SiO₂ and SiOF films. It is found from the FTIR spectra that n is reduced by 3.5% on doping with F atoms. The refractive indexes and thicknesses of the films were also determined by ellipsometry for comparison. The complex capacitance, $C^*(\omega) = C' - iC''$, of samples from the wafers has been measured in the frequency range 1 Hz-1.8 GHz with broadband dielec. spectroscopy. Two relaxation peaks, one centered at approx. 1 kHz and the other in the 10-100 MHz range are observed in both the SiO₂ and SiOF coated wafer samples. The measurements of $C^*(\omega)$ are related to the frequency-dependent complex permittivity, $\epsilon^*(\omega) = \epsilon' - i\epsilon''$ of the films with the use of simple equivalent circuit models. ϵ' Shows a reduction of 16% on fluorine addition. It is suggested that the origin of the high frequency peak is the RC network formed by the wafer substrate and the dielec. film, while the low frequency peak results from charged defects at the Si-SiO₂ interface. The dielec. results are compared with the microwave dielec. measurements, made using a different method, on both bare Si wafers and wafers coated with dielec. films, which have been reported recently. The observed dispersion in C' and peaks in C'' are a result of the layered metal-oxide-silicon structure of the samples.

CC 76-9 (Electric Phenomena)

Section cross-reference(s): 73

IT 7782-44-7, Oxygen, reactions 7783-61-1, Tetrafluorosilane

7803-62-5, Silane, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(plasma; refractive index at IR wavelengths and dielec. permittivity of pure and fluorinated silicon dioxide from measurements of their thin films deposited on Si)

IT 7631-86-9P, Silica, properties 116305-88-5P, Silicon fluoride oxide

RL: PNU (Preparation, unclassified); PRP (Properties); PREP

(Preparation)

(refractive index at IR wavelengths and dielec. permittivity of pure and fluorinated silicon dioxide from measurements of their thin films deposited on Si)

IT 7803-62-5, Silane, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(plasma; refractive index at IR wavelengths and dielec. permittivity of pure and fluorinated silicon dioxide from measurements of their thin films deposited on Si)

RN 7803-62-5 CAPLUS

CN Silane (8CI, 9CI) (CA INDEX NAME)

SiH₄

IT 116305-88-5P, Silicon fluoride oxide

RL: PNU (Preparation, unclassified); PRP (Properties); **PREP**

(Preparation)

(refractive index at IR wavelengths and dielec. permittivity of pure and fluorinated silicon dioxide from measurements of their thin films deposited on Si)

RN 116305-88-5 CAPLUS

CN Silicon fluoride oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
F	x	14762-94-8
Si	x	7440-21-3

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L75 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:837093 CAPLUS

DOCUMENT NUMBER: 139:307891

TITLE: Process for producing halosilanes from silicon and mixtures of halogens, hydrogen and/or halogen-containing compounds by impinging **microwave** energy

INVENTOR(S): Auner, Norbert

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany; Dow Corning Corporation

SOURCE: PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2003087107	A2	20031023	WO 2003-DE1270	20030415
WO 2003087107	A3	20031204		
W:	AE, AG, AL, AM, AU, AZ, BA, BB, BR, BY, BZ, CA, CN, CO, CR, CU, DM, DZ, EC, GD, GE, GH, GM, HR, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, RO, RU, SD, SG, SL, TJ, TM, TN, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
DE 10222728	A1	20031204	DE 2002-10222728	20020523

DE 10227041	A1	20031106	DE 2002-10227041	20020617
AU 2003236776	A1	20031027	AU 2003-236776	20030415
EP 1495033	A2	20050112	EP 2003-735264	20030415
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2005143592	A1	20050630	US 2003-510583	20030415
CN 1646542	A	20050727	CN 2003-808605	20030415
JP 2005522508	T2	20050728	JP 2003-584063	20030415

PRIORITY APPLN. INFO.:

DE 2002-10217139	A	20020417
DE 2002-10222728	A	20020523
DE 2002-10227041	A	20020617
WO 2003-DE1270	W	20030415

OTHER SOURCE(S): CASREACT 139:307891; MARPAT 139:307891

AB Halogen-containing silanes RaHbSiXc [R = (un)substituted C1-10 alkyl or aryl in which ≥ 1 C atoms can be replaced by CO, CO₂, O, S, SO, SO₂, NH or NR', where R' = (un)substituted C1-20 alkyl; X = F, Cl, Br; a = 0-3, b = 0-3, c = 1-4, and a + b + c = 4] are prepared by reaction of Si in presence of **microwave** energy with a gaseous atmospheric of mixts. of elements or compds. selected from among halogens, halogens and organohalogen compds., halogens and hydrogen, halogens and hydrogen halides, organohalogen compds. (alkyl or aryl halides, preferably MeCl), organohalogen compds. and hydrogen, organohalogen compds. and hydrogen halide, hydrogen halides, fluorosilanes and hydrogen, fluorosilanes and hydrogen halides, hydrogen-containing chlorosilanes and hydrogen, hydrogen-containing chlorosilanes and hydrogen halides, organohalosilanes and hydrogen, organohalosilanes and hydrogen halides or hydrocarbons (preferably methane or ethane) and hydrogen halides. Elemental Si used may be crystalline or amorphous, or mixts. of both, or in the form of a silicon alloy, preferably ferrosilicon, and the process may be carried out in presence of a metal or metal-containing catalyst or promotor, preferably Cu. This process uses much less energy and is thus more economical for production of halosilanes than prior art. In the example given, reaction of 98.5% ferrosilicon with a 1:1 gaseous mixture of MeCl and Ar with **microwave** irradiation gave 6.4% MeSiCl₃, 82% Me₂SiCl₂ and 11.6% Me₃SiCl.

IC ICM C07F007-02

CC 29-6 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 45, 49, 78

ST halosilane prepn process **microwave** irradiation

IT Silanes

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (chloro; process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)

IT Silanes

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (fluoro; process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)

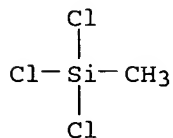
IT Silanes

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation) (halosilanes; process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)

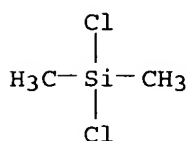
IT **Microwave**

(irradiation; process for preparation of halosilanes from silicon and mixts. of

- halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT Halides
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic; process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT Hydrogen halides
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 75-79-6P, Trichloro(methyl)silane
RL: BYP (Byproduct); SPN (Synthetic preparation); **PREP**
(Preparation)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 7440-50-8, Copper, uses
RL: CAT (Catalyst use); USES (Uses)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 75-78-5P, Dichloro(dimethyl)silane
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP**
(Preparation)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 74-82-8, Methane, reactions 74-84-0, Ethane, reactions 74-87-3, Methyl chloride, reactions 1333-74-0, Hydrogen, reactions 7440-21-3, Silicon, reactions 7647-01-0, Hydrogen chloride, reactions 7664-39-3, Hydrogen fluoride, reactions 7783-61-1, Silicon tetrafluoride 8049-17-0, Ferrosilicon
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 75-77-4P, Chloro(trimethyl)silane, preparation
RL: SPN (Synthetic preparation); **PREP** (Preparation)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- IT 75-79-6P, Trichloro(methyl)silane
RL: BYP (Byproduct); SPN (Synthetic preparation); **PREP**
(Preparation)
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave** irradiation)
- RN 75-79-6 CAPLUS
CN Silane, trichloromethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



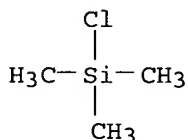
IT 75-78-5P, Dichloro(dimethyl)silane
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
RN 75-78-5 CAPLUS
CN Silane, dichlorodimethyl- (8CI, 9CI) (CA INDEX NAME)



IT 7440-21-3, Silicon, reactions
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
RN 7440-21-3 CAPLUS
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT 75-77-4P, Chloro(trimethyl)silane, preparation
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(process for preparation of halosilanes from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
RN 75-77-4 CAPLUS
CN Silane, chlorotrimethyl- (8CI, 9CI) (CA INDEX NAME)



L75 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:760007 CAPLUS
DOCUMENT NUMBER: 131:338994
TITLE: Manufacture of trichlorosilane by reduction of tetrachlorosilane in fluidized bed
INVENTOR(S): Griesshammer, Rudolf; Koppl, Franz; Schreieder, Franz
PATENT ASSIGNEE(S): Wacker-Chemie GmbH, Germany
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 4 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1153138	A	19970702	CN 1996-120113	19960923
PRIORITY APPLN. INFO.:			CN 1996-120113	19960923

AB The process comprises constituting a fluidized bed of Si granules, **microwave**-heating Si to 110-300°, reacting the HSiCl₃ with SiCl₄ and H₂ in the fluidized bed while adding Si granules continuously, collecting the product gas, separating SiHCl₃ from the gas product, and feeding back remnant gas to reactor. The SiHCl₄ in remnant gas may be pyrolyzed in sedimentation reactor to obtain Si.

IC ICM C01B033-107

CC 49-8 (Industrial Inorganic Chemicals)

IT 1333-74-0, Hydrogen, reactions **7440-21-3**, Silicon, reactions 10026-04-7, Tetrachlorosilane

RL: PEP (Physical, engineering or chemical process); **RCT (Reactant)**; TEM (Technical or engineered material use); PROC (Process); **RACT (Reactant or reagent)**; USES (Uses)
(in manufacture of trichlorosilane by reduction of tetrachlorosilane in fluidized bed)

IT **10025-78-2P**, Trichlorosilane

RL: IMF (Industrial manufacture); **PREP (Preparation)**
(manufacture of trichlorosilane by reduction of tetrachlorosilane in fluidized bed)

IT **7440-21-3**, Silicon, reactions

RL: PEP (Physical, engineering or chemical process); **RCT (Reactant)**; TEM (Technical or engineered material use); PROC (Process); **RACT (Reactant or reagent)**; USES (Uses)
(in manufacture of trichlorosilane by reduction of tetrachlorosilane in fluidized bed)

RN 7440-21-3 CAPLUS

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

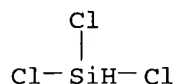
Si

IT **10025-78-2P**, Trichlorosilane

RL: IMF (Industrial manufacture); **PREP (Preparation)**
(manufacture of trichlorosilane by reduction of tetrachlorosilane in fluidized bed)

RN 10025-78-2 CAPLUS

CN Silane, trichloro- (8CI, 9CI) (CA INDEX NAME)



L75 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:424569 CAPLUS

DOCUMENT NUMBER: 121:24569

TITLE: Fine contact hole etching in magneto-microwave plasma

AUTHOR(S): Miyakawa, Yasuhiro; Hashimoto, Jun; Ikegami, Naokatsu; Matsui, Takayuki; Kanamori, Jun

CORPORATE SOURCE: VLSI R and D Cent., Oki. Electr. Ind. Co., Ltd.,

SOURCE: Hachioji, 193, Japan
 Japanese Journal of Applied Physics, Part 1: Regular
 Papers, Short Notes & Review Papers (1994), 33(4B),
 2145-50
 CODEN: JAPNDE; ISSN: 0021-4922

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Characteristics of fine contact hole etching have been investigated in
 hydro-fluorocarbon magneto-**microwave** plasma focusing on the z
 component of the gradient of magnetic field at 0.0875 T (dB/dz) and
 peak-to-peak voltage of RF bias (Vpp) as parameters. Decrease of dB/dz
 drastically decreases the etch rate of borophosphosilicate glass (BPSG),
 critical dimension loss (defined as diameter of the top of contact hole minus
 diameter of the bottom of resist) and selectivity over heavily doped n-type
 polycryst. silicon (n+ poly Si) and resist in fine contact holes. The
 changes of etching characteristics are correlated with neither F/C ratio
 nor Cls spectrum of deposited film, but with deposition rate in the region
 of high Vpp, which presumably reflects the change of incident CFm+ ion
 species with dB/dz.

CC 76-11 (Electric Phenomena)
 Section cross-reference(s): 67

ST silicon etching magneto **microwave** plasma; trifluoromethane
 dichloromethane etching borophosphosilicate glass resist

IT Resists
 (etching of, with magneto-**microwave** plasma of fluorocarbons,
 comparison of, with silicon)

IT Etching
 (of silico, with magneto-**microwave** plasma of fluorocarbons)

IT Glass, oxide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (borophosphosilicate, etching of, with magneto-**microwave**
 plasma of fluorocarbons, comparison of, with silicon)

IT 7440-21-3, Silicon, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (etching of, in magneto-**microwave** plasma of fluorocarbons)

IT 38192-99-3P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, in magneto-**microwave** plasma etching of silicon
 using fluorocarbons)

IT 75-10-5, Difluoromethane 75-46-7, Trifluoromethane
 RL: USES (Uses)
 (magneto-**microwave** plasma from, in etching of silicon)

IT 18851-76-8 33412-11-2 54250-40-7
 RL: USES (Uses)
 (role of, in magneto-**microwave** plasma etching of silicon)

IT 7440-21-3, Silicon, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (etching of, in magneto-**microwave** plasma of fluorocarbons)

RN 7440-21-3 CAPLUS

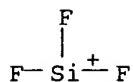
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT 38192-99-3P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, in magneto-**microwave** plasma etching of silicon
 using fluorocarbons)

RN 38192-99-3 CAPLUS

CN Silylium, trifluoro- (9CI) (CA INDEX NAME)



L75 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:585475 CAPLUS

DOCUMENT NUMBER: 111:185475

TITLE: Highly selective etching of silicon nitride (Si₃N₄) to silicon dioxide employing fluorine and chlorine atoms generated by **microwave** discharge

AUTHOR(S): Suto, S.; Hayasaka, N.; Okano, H.; Horiike, Y.

CORPORATE SOURCE: VLSI Res. Cent., Toshiba Corp., Kawasaki, 210, Japan

SOURCE: Journal of the Electrochemical Society (1989), 136(7), 2032-4

CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Highly selective etching of Si₃N₄ over SiO₂ was investigated employing F and Cl atoms generated by the **microwave** discharge of an NF₃ + Cl₂ mixture. F atoms alone react spontaneously with both Si₃N₄ and SiO₂, leading to insufficient Si₃N₄/SiO₂ selectivity. By adding Cl₂ to NF₃, most of the F atoms are rapidly converted to interhalogen FCl by a titration reaction with Cl₂ in the gas phase. The resultant FCl mols. etch Si₃N₄ as well as Si, but do not react with SiO₂ without any radiation assistance. As a result, infinite Si₃N₄/SiO₂ selectivity has been achieved. The faster etching for Si₃N₄ is attributed to a lower ionicity in the chemical bond state for Si₃N₄ than that for SiO₂.

CC 76-11 (Electric Phenomena)

Section cross-reference(s): 67

IT 7440-21-3, Silicon, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(etching of, by chlorine and fluorine atoms)

IT 14049-36-6P 18356-71-3P, Dichlorodifluorosilane

RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in nitrogen trifluoride-chlorine etching of silicon nitride and silica)

IT 7440-21-3, Silicon, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(etching of, by chlorine and fluorine atoms)

RN 7440-21-3 CAPLUS

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

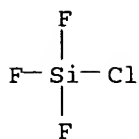
Si

IT 14049-36-6P 18356-71-3P, Dichlorodifluorosilane

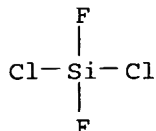
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in nitrogen trifluoride-chlorine etching of silicon nitride and silica)

RN 14049-36-6 CAPLUS

CN Silane, chlorotrifluoro- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 18356-71-3 CAPLUS
 CN Silane, dichlorodifluoro- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L75 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1988:56161 CAPLUS

DOCUMENT NUMBER: 108:56161

TITLE: Ab initio study of fluorinated silylboranes. 2

AUTHOR(S): Bock, C. W.; Trachtman, M.; Mains, Gilbert J.

CORPORATE SOURCE: Philadelphia Coll. Text. Sci., Philadelphia, PA,
 19144, USA

SOURCE: Journal of Physical Chemistry (1988), 92(2), 294-9
 CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reactions of singlet silylenes, H₂Si and F₂Si, with fluoroborane, FBH₂, have been studied by ab initio MO methods using 3-21G and 6-31G*(5D) basis sets. The effects of electron correlation at selected geometries were determined by Moller-Plesset perturbation theory. The reactions of H₂Si with FBH₂, leading to FH₂SiBH₂ by F atom transfer and to H₃SiBHF by H atom transfer, proceed without the formation of an adduct or transition state. The reactions of F₂Si with FBH₂, leading to F₃SiBH₂ by F atom transfer and to HF₂SiBH₂ by H atom transfer, proceed with the formation of adducts (in the former case as a novel bridged structure) and transition states. In certain reactions F₂Si behaves as a Lewis acid and in others as a Lewis base. The F atom transfer reaction has a 3.1 kcal/mol reaction barrier at the MP4SDQ/6-31G* level and the H atom transfer reaction is found to have a 7.6 kcal/mol barrier at the same level. The structures of the fluorinated silylborane products as well as the adducts and transition states are given. The structure of perfluorosilylborane is presented and shown to be in excellent agreement with the structure determined by microwave spectroscopy.

CC 29-4 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 22

IT 19091-19-1P 111718-87-7P 111718-88-8P

111718-89-9P 111718-90-2P

RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, from reaction of silylene with fluoroborane, MO in relation to)

IT 13825-90-6, Silylene 13966-66-0, Difluorosilylene

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with fluoroborane, MO in relation to)

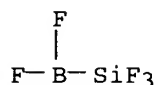
IT 19091-19-1P 111718-87-7P 111718-88-8P

111718-89-9P 111718-90-2P

RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, from reaction of silylene with fluoroborane, MO in relation to)

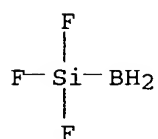
RN 19091-19-1 CAPLUS

CN Borane, difluoro(trifluorosilyl)- (8CI, 9CI) (CA INDEX NAME)



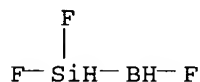
RN 111718-87-7 CAPLUS

CN Borane, (trifluorosilyl)- (9CI) (CA INDEX NAME)



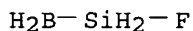
RN 111718-88-8 CAPLUS

CN Borane, (difluorosilyl)fluoro- (9CI) (CA INDEX NAME)



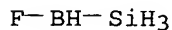
RN 111718-89-9 CAPLUS

CN Borane, (fluorosilyl)- (9CI) (CA INDEX NAME)



RN 111718-90-2 CAPLUS

CN Borane, fluorosilyl- (9CI) (CA INDEX NAME)



IT 13825-90-6, Silylene

RL: **RCT (Reactant); RACT (Reactant or reagent)**
(reaction of, with fluoroborane, MO in relation to)

RN 13825-90-6 CAPLUS

CN Silylene (8CI, 9CI) (CA INDEX NAME)



L75 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1985:510678 CAPLUS

DOCUMENT NUMBER: 103:110678

TITLE: Reaction of atomic fluorine with silicon
AUTHOR(S): Ninomiya, Ken; Suzuki, Keizo; Nishimatsu, Shigeru;
Okada, Osami
CORPORATE SOURCE: Cent. Res. Lab., Hitachi, Ltd., Kokubunji, 185, Japan
SOURCE: Journal of Applied Physics (1985), 58(3), 1177-82
CODEN: JAPIAU; ISSN: 0021-8979

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The etch rate of Si with F atoms was measured by the use of F2
microwave plasma at discharge pressures between 2.7×10^{-2}
and 17 Pa. F atom concentration in the plasma was determined over the same
pressure

range by both gas-phase titration and actinometry using Ar gas. A Si surface
etched at 1.0×10^{-1} , 5.3×10^{-1} , 1.3, and 5.3 Pa was analyzed
with XPS without exposing the surface to room air. A linear relation was
obtained between the Si etch rate and the F atom concentration at discharge
pressures between 2.7×10^{-2} and 2.7 Pa. The reaction probability
of F atoms with Si to yield SiF₄ was determined from the linear relation to be
0.1 for a Si surface at .apprx.300 K. When the discharge pressure was
>1.3 Pa, the surface became rather strongly oxidized by O atoms resulting
from residual gases. This surface oxidation results in a slight saturation of

the

Si etch rate at .apprx.10 Pa.

CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 56

IT Sputtering
(etching, of silicon by fluorine microwave)

IT Etching
Kinetics of etching
(sputter, of silicon by fluorine microwave)

IT 7440-21-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etching of, by fluorine atoms, kinetics of)

IT 7783-61-1P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, from silicon etching by fluorine microwave
plasma, probability of)

IT 7782-41-4, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(microwave plasma, etching kinetics of silicon by)

IT 7440-21-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etching of, by fluorine atoms, kinetics of)

RN 7440-21-3 CAPLUS

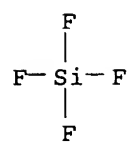
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT 7783-61-1P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, from silicon etching by fluorine microwave
plasma, probability of)

RN 7783-61-1 CAPLUS

CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



AUTHOR SEARCH

=> file caplus

FILE 'CAPLUS' ENTERED AT 17:54:02 ON 27 APR 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 27 Apr 2006 VOL 144 ISS 18

FILE LAST UPDATED: 26 Apr 2006 (20060426/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d stat que L65

L24	110513	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	?MICROWAV?/BI
L25	35	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	M/OBI(1W)WAVE/BI
L64	651	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	AUNER N?/AU
L65	4	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	L64 AND (L24 OR L25)

=> d stat que L70

L64	651	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	AUNER N?/AU
L69	657892	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	RADIA?/OBI OR IRRADIA?/OBI
L70	6	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	L69 AND L64

=> d stat que L72

L64	651	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	AUNER N?/AU
L71	1682	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	HALOSILANE/BI
L72	15	SEA	FILE=CAPLUS	ABB=ON	PLU=ON	L71 AND L64

=> s L65 or L70 or L72

L76 22 L65 OR L70 OR L72

=> d ibib abs hitind L76 1-22

L76 ANSWER 1 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:762295 CAPLUS

DOCUMENT NUMBER: 143:86476

TITLE: Investigation of silicone-modified photocatalytic TiO₂ formation by solid-liquid reaction and its structural changes under irradiation

AUTHOR(S): Nakabayashi, Akira

CORPORATE SOURCE: Performance Chemicals R+D Department, Asahi Kasei Corporation, Kawasaki-ku, Kanagawa, 210-0863, Japan

SOURCE: Organosilicon Chemistry V: From Molecules to Materials, [Scientific Contributions presented at the European Silicon Days], 1st, Munich, Germany, Sept., 2001 (2003), Meeting Date 2001, 819-825. Editor(s): **Auner, Norbert; Weis, Johann.** Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim, Germany. CODEN: 69FVR6; ISBN: 3-527-30670-6

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The kinetic study of the solid-liquid reaction between photocatalytic titanium dioxide (photo-TiO₂) and H-siloxane was investigated. The results showed that the solid-liquid reaction was inhibited in the presence of water, alc., ether, or other polar mols., and supported its characterization as a dehydrogenation condensation reaction. The synthesized silicone-modified photo-TiO₂ by the solid-liquid reaction was initially hydrophobic, but became super-hydrophilic after irradiation by BLB light. Both ESR and Si-NMR studies suggested that this effect was caused by the photocatalytic oxidation of the silicone present on the photo-TiO₂.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 67

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 2 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:762278 CAPLUS

DOCUMENT NUMBER: 142:464885

TITLE: Oil-bleeding properties of self-lubricating liquid silicone rubbers

AUTHOR(S): Pohmer, Klaus

CORPORATE SOURCE: Burghausen Plant, Elastomers Business Unit, Rubber Fabricators Business Team, Automotive Rubber Market Segment, Wacker-Chemie GmbH, Burghausen, D-84480, Germany

SOURCE: Organosilicon Chemistry V: From Molecules to Materials, [Scientific Contributions presented at the European Silicon Days], 1st, Munich, Germany, Sept., 2001 (2003), Meeting Date 2001, 678-688. Editor(s): **Auner, Norbert; Weis, Johann.** Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim, Germany. CODEN: 69FVR6; ISBN: 3-527-30670-6

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review. Liquid silicone rubber accounts for only a thousandth of the world's total rubber production, and is thus a specialty among rubber types. Nevertheless, LR products boast a large number of applications in many different fields. There is a particularly high demand for LR products in the automotive sector, where they are highly valued because of their low-temperature flexibility and thermal stability. Applications include radiator gaskets, exhaust pipe suspension elements, O-rings, seals and membranes, and insulating coverings for spark plugs. It has become standard practice to use weather packs made of special silicone rubber grades for sealing cable connectors for wiring harnesses. These silicone rubbers contain a silicone fluid which is incompatible with rubber and bleeds or exudes slowly after the product has cured.

CC 39-0 (Synthetic Elastomers and Natural Rubber)

IT Radiators
(gaskets; oil-bleeding properties of self-lubricating liquid silicone rubbers and their applications)

IT Gaskets

(radiator; oil-bleeding properties of self-lubricating liquid
silicone rubbers and their applications)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 3 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:762232 CAPLUS

DOCUMENT NUMBER: 142:156049

TITLE: Intensification of unsaturated organomagnesium
chloride production reaction

AUTHOR(S): Zhun, Vladimir; Zhun, Alla; Chernyshev, Evgenii

CORPORATE SOURCE: Federal State Unitary Enterprise State Research
Institute for Chemistry and Technology of
Organoelement Compounds, Moscow, 111123, Russia

SOURCE: Organosilicon Chemistry V: From Molecules to
Materials, [Scientific Contributions presented at the
European Silicon Days], 1st, Munich, Germany, Sept.,
2001 (2003), Meeting Date 2001, 360-362. Editor(s):
Auner, Norbert; Weis, Johann. Wiley-VCH
Verlag GmbH & Co. KGaA: Weinheim, Germany.
CODEN: 69FVR6; ISBN: 3-527-30670-6

DOCUMENT TYPE: Conference

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:156049

AB The efficiency of the effect of ultrasound irradiation on the reaction mixture
for vinyl- and phenylchlorosilane synthesis is determined by ultrasound
irradiation

(USI) frequency as well as by the exposure time and the origin of starting
organo halide. In the case of vinylmagnesium chloride, the formation
period of the major reaction product under continuous USI exposure
shortened 2.3-fold. When USI affected the synthesis during half the
reaction period, the latter duration shortened by 1.4 times. In the case
of phenylmagnesium chloride the process period also shortened by 2 and 1.2
times resp. for irradiation times that were 100 and 50 % of the reaction time.

CC 29-6 (Organometallic and Organometalloidal Compounds)

ST organo magnesium chloride prepn ultrasound **irradn**; magnesium
reaction vinyl phenyl chloride ultrasound **irradn**
intensification; vinyl phenyl chloro silane prepn

IT Grignard reaction

Sound and Ultrasound

(intensification of unsatd. organomagnesium chloride production under
ultrasound **irradiation** in preparation of vinyl- and
phenylchlorosilanes)

IT 100-59-4, Phenylmagnesium chloride 3536-96-7, Vinylmagnesium chloride

RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation,
nonpreparative); RACT (Reactant or reagent)
(intensification of unsatd. organomagnesium chloride production under
ultrasound **irradiation** in preparation of vinyl- and
phenylchlorosilanes)

IT 75-01-4, Vinyl chloride, reactions 108-90-7, Phenyl chloride, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(intensification of unsatd. organomagnesium chloride production under
ultrasound **irradiation** in preparation of vinyl- and
phenylchlorosilanes)

IT 754-05-2P, Trimethylvinylsilane 768-32-1P, Trimethylphenylsilane

RL: SPN (Synthetic preparation); PREP (Preparation)
(intensification of unsatd. organomagnesium chloride production under
ultrasound **irradiation** in preparation of vinyl- and
phenylchlorosilanes)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 4 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:762195 CAPLUS

DOCUMENT NUMBER: 142:156045

TITLE: Synthesis of a highly enantiomerically enriched silyllithium compound

AUTHOR(S): Auer, Dominik; Hoernig, Jan; Strohmman, Carsten

CORPORATE SOURCE: Institut fuer Anorganische Chemie, Universitaet Wuerzburg, Wuerzburg, D-97074, Germany

SOURCE: Organosilicon Chemistry V: From Molecules to Materials, [Scientific Contributions presented at the European Silicon Days], 1st, Munich, Germany, Sept., 2001 (2003), Meeting Date 2001, 167-170. Editor(s): Auner, Norbert; Weis, Johann. Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim, Germany. CODEN: 69FVR6; ISBN: 3-527-30670-6

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB The highly enantiomerically enriched silyllithium compound lithiomethylphenyl(1-piperidinylmethyl)silane reacts stereospecifically with chlorosilanes, but over a period of several hours slow racemization in solution at room temperature occurs, which can be suppressed by a metathesis reaction with $[Mg(THF)_4]Br_2$. Quantum chemical calcns. (B3LYP) of solvated model systems allow an assessment of possible intermediates during the racemization process. The exptl., but not the theor., results comprise a review.

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22

IT Silanes

RL: RCT (Reactant); RACT (Reactant or reagent)

(halosilanes, chloro; synthesis of highly enantiomerically enriched silyllithium compound, reactions with chlorosilanes and exptl. and theor. studies of racemization)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 5 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:762190 CAPLUS

DOCUMENT NUMBER: 142:114151

TITLE: The conformation preference of the methyl group in 1-methyl-1-silacyclohexane

AUTHOR(S): Arnason, Ingvar; Kvaran, Agust; Jonsdottir, Sigridur; Gudnason, Palmar I.; Oberhammer, Heinz

CORPORATE SOURCE: Science Institute, University of Iceland, Reykjavik, IS-107, Iceland

SOURCE: Organosilicon Chemistry V: From Molecules to Materials, [Scientific Contributions presented at the European Silicon Days], 1st, Munich, Germany, Sept., 2001 (2003), Meeting Date 2001, 135-138. Editor(s): Auner, Norbert; Weis, Johann. Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim, Germany. CODEN: 69FVR6; ISBN: 3-527-30670-6

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The conformational equilibrium of the title compound was studied exptl. in the gas phase by gas electron diffraction and in solution at low temps. by ^{13}C NMR, and theor. by quantum chemical (HF/6-31G*, MP2/6-31G* and B3LYP/6-31G*) calcns. Both exptl. methods result in a preference of the equatorial position of the Me group, 68(7)% in the gas phase at 298 K and 74(1)% in

solution at 110 K. The calcns. predict 66% equatorial conformer at room temperature

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 65

IT Conformation
Hartree-Fock method
MP2 (second-order Moller-Plesset method)
Methyl group
Radial distribution function
(NMR, electron diffraction and quantum chemical studies of conformation preference of Me group in 1-methylsilacyclohexane)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 6 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:837093 CAPLUS

DOCUMENT NUMBER: 139:307891

TITLE: Process for producing halosilanes from silicon and mixtures of halogens, hydrogen and/or halogen-containing compounds by impinging microwave energy

INVENTOR(S): Auner, Norbert

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany; Dow Corning Corporation

SOURCE: PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003087107	A2	20031023	WO 2003-DE1270	20030415
WO 2003087107	A3	20031204		
W:	AE, AG, AL, AM, AU, AZ, BA, BB, BR, BY, BZ, CA, CN, CO, CR, CU, DM, DZ, EC, GD, GE, GH, GM, HR, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, RO, RU, SD, SG, SL, TJ, TM, TN, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
DE 10222728	A1	20031204	DE 2002-10222728	20020523
DE 10227041	A1	20031106	DE 2002-10227041	20020617
AU 2003236776	A1	20031027	AU 2003-236776	20030415
EP 1495033	A2	20050112	EP 2003-735264	20030415
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
US 2005143592	A1	20050630	US 2003-510583	20030415
CN 1646542	A	20050727	CN 2003-808605	20030415
JP 2005522508	T2	20050728	JP 2003-584063	20030415
PRIORITY APPLN. INFO.:			DE 2002-10217139	A 20020417
			DE 2002-10222728	A 20020523
			DE 2002-10227041	A 20020617
			WO 2003-DE1270	W 20030415

OTHER SOURCE(S): CASREACT 139:307891; MARPAT 139:307891

AB Halogen-containing silanes RaHbSiXc [R = (un)substituted C1-10 alkyl or aryl in which ≥1 C atoms can be replaced by CO, CO2, O, S, SO, SO2, NH

or NR', where R' = (un)substituted C1-20 alkyl; X = F, Cl, Br; a = 0-3, b = 0-3, c = 1-4, and a + b + c = 4] are prepared by reaction of Si in presence of **microwave** energy with a gaseous atmospheric of mixts. of elements or compds. selected from among halogens, halogens and organohalogen compds., halogens and hydrogen, halogens and hydrogen halides, organohalogen compds. (alkyl or aryl halides, preferably MeCl), organohalogen compds. and hydrogen, organohalogen compds. and hydrogen halide, hydrogen halides, fluorosilanes and hydrogen, fluorosilanes and hydrogen halides, hydrogen-containing chlorosilanes and hydrogen, hydrogen-containing chlorosilanes and hydrogen halides, organohalosilanes and hydrogen, organohalosilanes and hydrogen halides or hydrocarbons (preferably methane or ethane) and hydrogen halides. Elemental Si used may be crystalline or amorphous, or mixts. of both, or in the form of a silicon alloy, preferably ferrosilicon, and the process may be carried out in presence of a metal or metal-containing catalyst or promotor, preferably Cu. This process uses much less energy and is thus more economical for production of **halosilanes** than prior art. In the example given, reaction of 98.5% ferrosilicon with a 1:1 gaseous mixture of MeCl and Ar with **microwave** irradiation gave 6.4% MeSiCl₃, 82% Me₂SiCl₂ and 11.6% Me₃SiCl.

IC ICM C07F007-02

CC 29-6 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 45, 49, 78

ST **halosilane** prepn process **microwave** irradsn

IT Silanes

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(chloro; process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT Silanes

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(fluoro; process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT Silanes

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(**halosilanes**; process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT **Microwave**

(**irradiation**; process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT Halides

RL: RCT (Reactant); RACT (Reactant or reagent)

(organic; process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT Hydrogen halides

RL: RCT (Reactant); RACT (Reactant or reagent)

(process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

IT 75-79-6P, Trichloro(methyl)silane

RL: BYP (Byproduct); SPN (Synthetic preparation); PREP (Preparation)
(process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using

- microwave irradiation)**
- IT 7440-50-8, Copper, uses
 RL: CAT (Catalyst use); USES (Uses)
 (process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
- IT 75-78-5P, Dichloro(dimethyl)silane
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
- IT 74-82-8, Methane, reactions 74-84-0, Ethane, reactions 74-87-3, Methyl chloride, reactions 1333-74-0, Hydrogen, reactions 7440-21-3, Silicon, reactions 7647-01-0, Hydrogen chloride, reactions 7664-39-3, Hydrogen fluoride, reactions 7783-61-1, Silicon tetrafluoride 8049-17-0, Ferrosilicon
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)
- IT 75-77-4P, Chloro(trimethyl)silane, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (process for preparation of **halosilanes** from silicon and mixts. of halogens, hydrogen and/or halogen-containing compds. by using **microwave irradiation**)

L76 ANSWER 7 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:570911 CAPLUS

DOCUMENT NUMBER: 139:103149

TITLE: Production of amorphous silicon and/or organohalosilanes

INVENTOR(S): Auner, Norbert

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany; Dow Corning Corporation

SOURCE: PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003059815	A1	20030724	WO 2003-DE116	20030117
W:	AE, AG, AL, AM, AU, AZ, BA, BB, BR, BY, BZ, CA, CN, CO, CR, CU, DM, DZ, EC, GD, GE, GH, GM, HR, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, RO, RU, SD, SG, SL, TJ, TM, TN, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
DE 10217125	A1	20030731	DE 2002-10217125	20020417
DE 10217124	A1	20031030	DE 2002-10217124	20020417
DE 10217126	A1	20031030	DE 2002-10217126	20020417
DE 10217140	A1	20031030	DE 2002-10217140	20020417
AU 2003206626	A1	20030730	AU 2003-206626	20030117
EP 1474361	A1	20041110	EP 2003-704218	20030117

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

JP 2005514312 T2 20050519 JP 2003-559926 20030117

CN 1620404 A 20050525 CN 2003-802454 20030117

US 2005053540 A1 20050310 US 2004-501369 20040714

PRIORITY APPLN. INFO.:

DE 2002-10201772 A 20020118

DE 2002-10217124 A 20020417

DE 2002-10217125 A 20020417

DE 2002-10217126 A 20020417

DE 2002-10217140 A 20020417

WO 2003-DE116 W 20030117

AB The invention relates to a method for producing amorphous Si and/or organohalosilanes. In a 1st embodiment of the method, a **halosilane** is reacted with a metal in an apolar solvent. In a 2nd embodiment, the black amorphous Si is reacted with an organohalogen to form an organohalosilane. In a 3rd embodiment, amorphous Si is produced by reducing SiCl₄ with a metal in an apolar solvent. In a 4th embodiment, amorphous Si is produced by reacting SiF₄ with a metal. The method can be carried out by using an especially small amount of materials and/or energy, and/or

is characterized by an especially high versatility.

IC ICM C01B033-033

CC 49-1 (Industrial Inorganic Chemicals)

IT Silanes

RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

(**halosilanes**, organo-; production of amorphous silicon and/or organohalosilanes)

IT **Microwave**

(in production of organohalosilanes)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 8 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:91323 CAPLUS

DOCUMENT NUMBER: 139:53069

TITLE: Modeling SN₂ nucleophilic substitution at silicon by structural correlation with X-ray crystallography and NMR spectroscopy

AUTHOR(S): Bassindale, Alan R.; Parker, David J.; Taylor, Peter G.; **Auner, Norbert**; Herrschaft, Bernhard

CORPORATE SOURCE: Department of Chemistry, Open University, Milton Keynes, MK7 6AA, UK

SOURCE: Journal of Organometallic Chemistry (2003), 667(1-2), 66-72

CODEN: JORCAI; ISSN: 0022-328X

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:53069

AB The x-ray crystal structures of four 1-(halodimethylsilylmethyl)-2-quinolinones were measured and used to model the reaction profile for nucleophilic substitution at Si. Similar structural correlations were performed in solution, the percentage Si-O bond formation being obtained from the ¹³C chemical shifts of the quinolinone carbons and the extent of pentacoordination from the ²⁹Si chemical shift of the Si. Excellent agreement was obtained between the two methods confirming the validity of the NMR technique for structural correlation in solution

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 75

IT 59-31-4, 2-Quinolinone
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with **halosilanes** and modeling of SN2 nucleophilic substitution at silicon by structural correlation with X-ray crystallog. and NMR of (halodimethylsilylmethyl)quinolinones)

IT 996-50-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with quinolinone and **halosilanes** and modeling of SN2 nucleophilic substitution at silicon by structural correlation with X-ray crystallog. and NMR of (halodimethylsilylmethyl)quinolinones)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 9 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:349821 CAPLUS
DOCUMENT NUMBER: 133:123868
TITLE: Novel silyl-carbodiimide gels for the preparation of Si/C/(N) ceramics
AUTHOR(S): Kroke, Edwin; Gabriel, Andreas O.; Kim, Dong Seok; Riedel, Ralf
CORPORATE SOURCE: Fachgebiet Disperse Feststoffe Fachbereich Materialwissenschaft Technische Universitat Darmstadt, Darmstadt, D-64287, Germany
SOURCE: Organosilicon Chemistry IV: From Molecules to Materials, [Lectures and Poster Contributions presented at the Muechner Silicontage], 4th, Muechen, Apr., 1998 (2000), Meeting Date 1998, 812-817. Editor(s): **Auner, Norbert; Weis, Johann.** Wiley-VCH Verlag GmbH: Weinheim, Germany. CODEN: 68ZMAL
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English

AB A review and discussion, with 23 refs., of the use of silyl-carbodiimide gels for the preparation of Si/C/(N) ceramics. Examples from the authors work on reactions of chlorosilanes with stoichiometric amts. of bis(trimethylsilyl)carbodiimide are described. The sol-gel process based on alkoxy silanes has been used extensively to prepare oxide glasses and ceramics. Several attempts to apply analogous sol-gel synthesis routes to non-oxide materials were only partially successful. Recently we have found that several di- and trichlorosilanes like MeRSiCl₂ (R = -H, -SiCl₂Me, -CH₂CH₂SiCl₂Me) or RSiCl₃ (R = -H, -Cl, -Me, -Ph, -SiCl₃, -CH₂CH₂SiCl₃), and other silanes as well as silane mixts. react with bis(trimethylsilyl)carbodiimide (Me₃Si-N=C=N-SiMe₃) to form polymeric organosilicon gels. Usually no solvent is required and pyridine is used as a catalyst. The highly cross-linked gels are prepared at 20-60°C. In very few cases the sol-gel transition is reversible. Insol. colorless xerogels are obtained by evaporation of the liquid phase. Heat treatment transforms these polymers into ceramic materials in the ternary Si/C/(N) system.

CC 57-0 (Ceramics)
Section cross-reference(s): 38

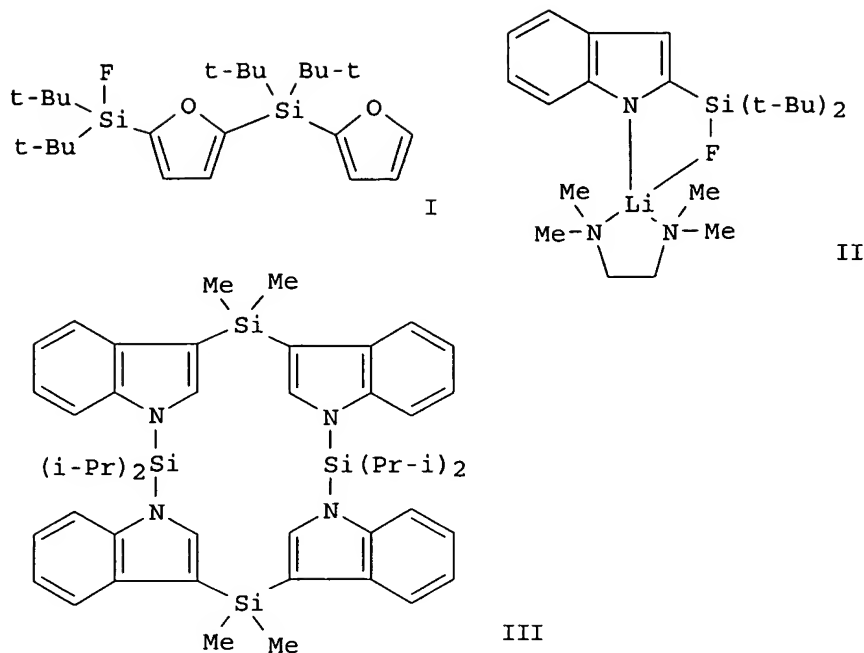
IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(**halosilanes**, starting material; novel silyl-carbodiimide gels for preparation of Si/C/(N) ceramics)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 10 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:349782 CAPLUS

DOCUMENT NUMBER: 133:266917
TITLE: Salen-silicon complexes - a new type of hexacoordinate silicon
AUTHOR(S): Haberecht, Jorg; Mucha, Frank; Bohme, Uwe; Roewer, Gerhard
CORPORATE SOURCE: Institut fur Anorganische Chemie Technische Universitat Bergakademie Freiberg, Freiberg, D-09596, Germany
SOURCE: Organosilicon Chemistry IV: From Molecules to Materials, [Lectures and Poster Contributions presented at the Muechner Silicontage], 4th, Muechen, Apr., 1998 (2000), Meeting Date 1998, 500-504. Editor(s): **Auner, Norbert; Weis, Johann.** Wiley-VCH Verlag GmbH: Weinheim, Germany. CODEN: 68ZMAL
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The reaction of tetradentate azomethine ligands H₂salen* [N,N'-ethylene-bis(2-hydroxyacetophenoneimine)] or H₂salen.dbldag. [N,N'-ethylene-bis(3,5-di-tert-butyl-salicylideneimine)] with chlorosilanes produces Si compds. with hexacoordinated Si (salen)SiXY (X = Cl; Y = H, Cl, CH₃, C₆H₅). Both ligands X and Y can be exchanged for F. The crystal structure anal. of (salen*)SiF₂ reveals the truly hexacoordination of the Si atom. The chloro compds. (salen*)SiCl₂ undergo Wurtz-type coupling reactions leading to oligosilanes with hypervalent Si. Coupling of (salen*)SiCl₂ with acetylides creates compds. with an Si-C.tplbond.C-Si backbone.
CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75, 77, 78
IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(**halosilanes**, chloro; reaction with ethylenebishydroxyacetophenoneimine to give salen complex containing hexacoordinate silicon)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 11 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:349735 CAPLUS
DOCUMENT NUMBER: 133:321933
TITLE: Heteroaromatic-substituted silanes - synthesis, lithium derivatives and anionic rearrangements
AUTHOR(S): Baum, Claudia; Frenzel, Andrea; Klingebiel, Uwe; Neugebauer, Peter
CORPORATE SOURCE: Institut fur Anorganische Chemie, Georg-August-Universitat, Gottingen, D-37077, Germany
SOURCE: Organosilicon Chemistry IV: From Molecules to Materials, [Lectures and Poster Contributions presented at the Muechner Silicontage], 4th, Muechen, Apr., 1998 (2000), Meeting Date 1998, 232-237. Editor(s): **Auner, Norbert; Weis, Johann.** Wiley-VCH Verlag GmbH: Weinheim, Germany. CODEN: 68ZMAL
DOCUMENT TYPE: Conference
LANGUAGE: English
OTHER SOURCE(S): CASREACT 133:321933
GI



AB Pure and mixed substituted indolyl-, pyrrolyl-, and furanyl-silanes are formed in the reaction of heteroarom. compds. with Li heteroaryls and **halosilanes**, i.e., reaction 2-furanyllithium with SiF₄ gave tetrakis(2-furanyl)silane. Chains of silyl-bridged mols. (I) were prepared as well. The crystal structure of a Li derivative (II) is presented and the 1,2-silyl group migration from N to C is proved. Formation of a 16-membered macrocycle (III) containing four indole mols. is described.

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 27, 75

ST crystal structure furanylsilane indolylsilane lithium indolide; mol structure furanylsilane indolylsilane lithium indolide; indolylsilane prepn structure; pyrrolylsilane prepn; furanylsilane prepn structure; heteroarom substituted silane prepn anionic rearrangement; lithium deriv heteroarom substituted silane prepn; **halosilane** heteroaryllithium reaction heteroarom substituted silane prepn; indolyllithium prepn structure; phenyl mixed heteroarom silane prepn; macrocycle tetrasilatetraindolyl contg prepn; silyl shift indolylsilane deriv

IT Silanes

RL: RCT (Reactant); RACT (Reactant or reagent)

(**halosilanes**; reaction of heteroarom. compds. with Li alkyls

and **halosilanes** in preparation of heteroarom.-substituted silanes)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 12 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:349713 CAPLUS

DOCUMENT NUMBER: 133:150612

TITLE: Sterically overloaded silanes, silylenes and disilenes with supersilyl substituents tBu₃Si

AUTHOR(S): Wiberg, Nils; Niedermayer, Wolfgang; Polborn, Kurt; Noth, Heinrich; Knizek, Jorg; Fenske, Dieter; Baum, Gerhard

CORPORATE SOURCE: Institut fur Anorganische Chemie, Ludwig-Maximilians-
Universitat Munchen, Munchen, D-81377, Germany

SOURCE: Organosilicon Chemistry IV: From Molecules to
Materials, [Lectures and Poster Contributions
presented at the Muechner Silicontage], 4th, Muechen,
Apr., 1998 (2000), Meeting Date 1998, 93-97.
Editor(s): **Auner, Norbert; Weis, Johann.**
Wiley-VCH Verlag GmbH: Weinheim, Germany.
CODEN: 68ZMAL

DOCUMENT TYPE: Conference

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:150612

AB Silanes, $t\text{Bu}_3\text{SiSiX}_3$ and $(t\text{Bu}_3\text{Si})_2\text{SiX}_2$, with bulky supersilyl substituents
are easily accessible by reaction of **halosilanes** (e.g., H_2SiCl_2 ,
 SiF_4 , MeSiHCl_2) with $t\text{Bu}_3\text{SiNa}$. Their decomposition into silylenes and their
transformation into their silanides as well as into a stable disilene with
phenyl- and supersilyl-substituents are described. The constitutions of
 $t\text{Bu}_3\text{SiSiI}_3$, $(t\text{Bu}_3\text{Si})_2\text{SiCl}_2$ and $t\text{Bu}_3\text{SiPhSi:SiPhSi}t\text{Bu}_3$ are solved by x-ray
structure analyses.

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

ST silanide tritertbutyl reaction **halosilane**; silylene supersilyl
substituent prepn; crystal structure tritertbutyl triiodo disilane
dichlorodisilylsilane; mol structure tritertbutyl triiodo disilane
dichlorodisilylsilane; disilane tritertbutyl triiodo prepn crystal
structure; silane dichlorodisilyl prepn crystal structure; supersilyl
substituent overloaded silane silylene disilene chem

IT Silanes
RL: SPN (Synthetic preparation); PREP (Preparation)
(di-; silylation of **halosilanes** by sodium
tritertbutylsilanide to give disilanes)

IT Silylation
(of **halosilanes** by sodium tritertbutylsilanide to give
disilanes)

IT 103349-41-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions with **halosilanes**)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 13 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:182171 CAPLUS

DOCUMENT NUMBER: 128:233914

TITLE: Microporous thermal insulation: theory, properties,
applications

AUTHOR(S): Katzer, Hans; Weis, Johann

CORPORATE SOURCE: Wacker-Chemie GmbH, Kempten, D-87437, Germany

SOURCE: Organosilicon Chemistry III: From Molecules to
Materials, [Muenchner Silicontage], 3rd, Munich, Apr.,
1996 (1998), Meeting Date 1996, 682-690. Editor(s):
Auner, Norbert; Weis, Johann. Wiley-VCH
Verlag GmbH: Weinheim, Germany.
CODEN: 65UHAS

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 3 refs. The phys. requirements for a high performance
insulation material can be fulfilled with pressed mixts. consisting of
fumed silica and opacifiers or with aerogels. No other com. available
nonflammable system can compete with these, either by heat flow
transferred through gases, or through solid-state transmission. The high

IR permeability of thermal radiation can be reduced with the addition of opacifiers. Since commencement of com. production at the beginning of the 1950s, the interest in microporous thermal insulation materials has grown continuously. Therefore, for example, aerogels are used in the insulation of lighting elements, refrigerators and water boilers. Products made from fumed silica are largely used as insulation for radiant heaters in glass ceramic hobs, in night storage heaters and in numerous industrial applications in high temperature areas.

CC 57-0 (Ceramics)

IT IR radiation

Opacifiers

Thermal insulators

(theory and properties and applications of microporous thermal insulation from pressed mixts. of fumed silica and opacifiers or aerogels)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 14 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:182144 CAPLUS

DOCUMENT NUMBER: 128:236633

TITLE: Localization phenomena of photogenerated charge carriers in silicon structures: from organosilicon compounds to bulk silicon

AUTHOR(S): Wirschem, Thomas; Veprek, Stan

CORPORATE SOURCE: Inst. Chem. Anorg. Mater., Tech. Univ. Munchen, Garching, D-85747, Germany

SOURCE: Organosilicon Chemistry III: From Molecules to Materials, [Muenchner Silicontage], 3rd, Munich, Apr., 1996 (1998), Meeting Date 1996, 643-648. Editor(s): Auner, Norbert; Weis, Johann. Wiley-VCH Verlag GmbH: Weinheim, Germany. CODEN: 65UHAS

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The luminescence properties of a variety of silicon structures are presented. The sizes range from simple organosilicon compds. over nano- and microcryst. silicon to bulk silicon. Time-resolved microwave absorption measurements have been used to show the importance of localization of the photogenerated charge carriers for an efficient luminescence in systems with reduced effective dimensionality of the Si matrix.

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 57

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 15 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:181797 CAPLUS

DOCUMENT NUMBER: 128:230421

TITLE: Investigations of nucleophilic substitution at silicon: an unprecedented equilibrium between an ionic and covalent chlorosilane

AUTHOR(S): Schar, D.; Belzner, J.

CORPORATE SOURCE: Inst. Org. Chem., Georg-August-Univ., Gottingen, D-37077, Germany

SOURCE: Organosilicon Chemistry III: From Molecules to Materials, [Muenchner Silicontage], 3rd, Munich, Apr., 1996 (1998), Meeting Date 1996, 429-434. Editor(s):

Auner, Norbert; Weis, Johann. Wiley-VCH
Verlag GmbH: Weinheim, Germany.
CODEN: 65UHAS

DOCUMENT TYPE: Conference; General Review
LANGUAGE: English

AB A review with 6 refs. A series of **halosilanes** $R_2SiH(Hal)$ ($R = 2-(Me_2NCH_2)C_6H_4$) were prepared. The influence of the leaving group ability of the halogen substituent, the polarity of the solvent, temperature, and concentration on the formation of intramol. coordinated silyl cations has been investigated.

CC 29-0 (Organometallic and Organometalloidal Compounds)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 16 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:181684 CAPLUS

DOCUMENT NUMBER: 128:204934

TITLE: On the reaction of $(tBu_2SnO)_3$ with organochlorosilanes. Simple formation of $[(tBu_2SnO)_2(tBu_2SiO)]$

AUTHOR(S): Beckmann, Jens; Jurkschat, Klaus; Schollmeyer, Dieter
CORPORATE SOURCE: Fachber. Chem., Univ. Dortmund, Dortmund, D-44221, Germany

SOURCE: Organosilicon Chemistry III: From Molecules to Materials, [Muenchner Silicontage], 3rd, Munich, Apr., 1996 (1998), Meeting Date 1996, 403-406. Editor(s):
Auner, Norbert; Weis, Johann. Wiley-VCH
Verlag GmbH: Weinheim, Germany.
CODEN: 65UHAS

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The reaction of $(tBu_2SnO)_3$ with tBu_2SiCl_2 gave $[(tBu_2SnO)_2(tBu_2SiO)]$ and $tBu_2Sn[OSi(tBu_2)O]_2Sn(tBu)_2$ (4) whereas treatment of $(tBu_2SnO)_3$ with tBu_2SiF_2 afforded $tBu_2Sn[OSi(F)tBu_2]_2$. The compds. were characterized by NMR spectroscopy, mass spectrometry, and in case of 4 also by x-ray anal.

CC 29-6 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

ST crystal structure tetraoxadisiladistannacyclooctane; mol structure tetraoxadisiladistannacyclooctane; tetraoxadisiladistannacyclooctane tbutyl prepn structure; cyclization tristannatrioxane **halosilane**; silastannaoxacycloalkane prepn; stannasilaoxacycloalkane prepn

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 17 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:179492 CAPLUS

DOCUMENT NUMBER: 128:230406

TITLE: Novel synthetic approach to molybdenum-silicon compounds: structures and reactivities

AUTHOR(S): Jutzi, Peter; Petri, Stefan H. A.

CORPORATE SOURCE: Fak. Chem., Univ. Bielefeld, Bielefeld, D-33615, Germany

SOURCE: Organosilicon Chemistry III: From Molecules to Materials, [Muenchner Silicontage], 3rd, Munich, Apr., 1996 (1998), Meeting Date 1996, 275-280. Editor(s):

Auner, Norbert; Weis, Johann. Wiley-VCH
Verlag GmbH: Weinheim, Germany.
CODEN: 65UHAS

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with > 10 refs. For several reasons, complexes with a transition metal-silicon bond are of special interest. A new and very convenient synthesis of molybdenum-silicon compds. is presented. The complexes $\text{Cp}_2\text{Mo}(\text{H})\text{SiBr}_3$ (1) and $\text{Cp}_2\text{Mo}(\text{H})\text{Si}_2\text{Cl}_5$ (2) are formed by simply stirring a solution of Cp_2MoH_2 in toluene in the presence of the corresponding **halosilane**. The x-ray crystal structure analyses reveal the shortest ever observed Mo-Si bond distances (1: 2.459(3)Å and 2: 2.4636(8)Å). Several other new $\text{Cp}_2\text{Mo}(\text{H})\text{SiR}_3$ complexes are synthesized by the well-known reductive elimination/oxidative addition reaction starting from Cp_2MoH_2 and the corresponding hydridosilane. Some typical reactions of these compds. are presented.

CC 29-0 (Organometallic and Organometalloidal Compounds)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L76 ANSWER 18 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:423282 CAPLUS

DOCUMENT NUMBER: 122:265418

TITLE: Homo- and heterocyclic Si-O-systems rings and cages

AUTHOR(S): Klingebiel, Uwe

CORPORATE SOURCE: Institut für Anorganische Chemie, Georg-August-Universität Göttingen, Göttingen, D-37077, Germany

SOURCE: Organosilicon Chem. (1994), 51-5. Editor(s):

Auner, Norbert; Weis, Johann. VCH: Weinheim, Germany.

CODEN: 60NDAG

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 12 refs. Hydrolysis of chlorosilanes and subsequent condensation of the resulting silanols represent a very common way of preparing acyclic and cyclic siloxanes. Since the condensation happens spontaneously it is very difficult to control the ring size or to introduce other elements and units into these Si-O ring systems. The authors prepared functional silanols $(\text{Me}_3\text{C})_2\text{Si}(\text{OH})\text{X}$ ($\text{X} = \text{OH}, \text{F}, \text{Cl}, \text{NH}_2$), useful precursors for the stepwise synthesis of Si-O systems. These silanols do not readily self-condense due to the presence of bulky substituents. By forming the alkali metal derivs. and reacting them with **halosilanes** it is possible to build functionalized siloxane units of nearly any size, which can be used in ring-closure reactions. The x-ray structural anal. of the alkali metal derivs. provides some information about the reaction mechanism.

CC 29-0 (Organometallic and Organometalloidal Compounds)

L76 ANSWER 19 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:423273 CAPLUS

DOCUMENT NUMBER: 123:56762

TITLE: Electroreductive formation of di- and polysilanes

AUTHOR(S): Hengge, E.; Jammegg, Ch.

CORPORATE SOURCE: Institut für Anorganische Chemie, Technische Universität Graz, Graz, A-8010, Austria

SOURCE: Organosilicon Chem. (1994), 27-9. Editor(s):

Auner, Norbert; Weis, Johann. VCH: Weinheim, Germany.

CODEN: 60NDAG

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The electrochem. polymerization of **halosilanes** using a SiC anode is discussed.

CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 72

ST polysilane electrochem prepn; electrochem polymn **halosilane**;
silicon carbide anode electrochem polymn

IT Anodes
(electrochem. polymerization of **halosilanes** using SiC anode)

IT Polymerization
(electrochem., of **halosilanes** using SiC anode)

IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(halo, electrochem. polymerization of **halosilanes** using SiC anode)

IT 409-21-2, Silicon carbide, uses
RL: DEV (Device component use); USES (Uses)
(electrochem. polymerization of **halosilanes** using SiC anode)

L76 ANSWER 20 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:191783 CAPLUS

DOCUMENT NUMBER: 120:191783

TITLE: Structural investigation of higher coordinated silicon compounds: model for nucleophilic substitution at silicon center

AUTHOR(S): **Auner, N.**; Probst, R.; Hahn, F.; Herdtweck, E.

CORPORATE SOURCE: Anorganisch-chemisches Institut der Technischen Universitaet Muenchen, Lichtenbergstr. 4, Garching bei Munchen, D-85747, Germany

SOURCE: Journal of Organometallic Chemistry (1993), 459(1-2), 25-41
CODEN: JORCAI; ISSN: 0022-328X

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 120:191783

AB Silicon compds. substituted by 2-(dimethylaminomethyl)phenyl groups (C₆H₄CH₂NMe₂)_nSiX_{4-n} (X = Cl, H, organo group, n = 1-4) are available by the reaction of the appropriate chlorosilanes with 2-(dimethylaminomethyl)phenyllithium. A comparison of the ²⁹Si NMR spectroscopic shifts δ with the values obtained for corresponding Ph silanes shows that there is higher coordination of the silicon atom by N→Si contacts, except for the silanes 11 (X = Cl; n = 3) and 12 (n = 4). X-ray crystal structure anal. confirms pentacoordination of the silicon atom in the dichlorosilanes 4 (X = Cl; n = 2) and 5. For (C₆H₄CH₂NMe₂)₃SiH (10), heptacoordination of the silicon atom is found in the crystalline state [d(N → Si) ≈ 301 pm]. The tetrasubstituted derivative (C₆H₄CH₂NMe₂)₄Si (12) has no N → Si contacts in solution and in the solid state: steric congestion does not allow higher coordination.

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

ST higher coordinated silicon compd; aminomethylphenyllithium reaction **halosilane**; nucleophilic substitution silicon center model; crystal mol structure aminomethylphenylsilane

IT 27171-81-9, 2-(Dimethylaminomethyl)phenyllithium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with **halosilanes**)

L76 ANSWER 21 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:135309 CAPLUS

DOCUMENT NUMBER: 110:135309

TITLE: Silaheterocycles. III. Synthesis and reactivity of di-tert-butylneopentylsilaethene, tert-Bu₂Si:CHCH₂Bu-tert

AUTHOR(S): Auner, N.
CORPORATE SOURCE: Anorg.-Chem. Inst., Westfael. Wilhelms Univ.,
Muenster, Fed. Rep. Ger.
SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
(1988), 558, 87-106
CODEN: ZAACAB; ISSN: 0044-2313
DOCUMENT TYPE: Journal
LANGUAGE: German
OTHER SOURCE(S): CASREACT 110:135309
AB Vinylation of (Me3C)2SiXX1 (X = H, X1 = Cl, X = X1 = Cl, F) with H2C:CHLi
gave (Me3C)2Si(X)CH:CH2 (I). In the treatment of I with Me3CLi, the first
step is the generation of the α -lithio compound
(Me3C)2Si(X)CH(Li)CH2CMe3; the following reaction is governed by the
nature of the substituent and the reaction conditions (solvent, concentration,
temperature). For X = H, 2,3-LiH elimination leads to (Me3C)2Si(H)CH:CH2CMe3
(II); with X = F, Cl, Si:C formation by 1,2-LiX elimination competes with
intermol. Si-C coupling to produce (Me3C)2Si(H)CH{Si(CMe3)2CH:CHCMe3}CH2CM
e3 as the main product. Mechanism of the formation of the products are
discussed.
CC 29-6 (Organometallic and Organometalloidal Compounds)
IT 917-57-7, Vinylolithium
RL: RCT (Reactant); RACT (Reactant or reagent)
(vinylation by, of **halosilanes**)

L76 ANSWER 22 OF 22 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1986:424331 CAPLUS
DOCUMENT NUMBER: 105:24331
TITLE: The (p-d) π bonding in fluorosilanes? Gas-phase
structures of (CH3)4-nSiFn with n = 1-3 and of
(tert-Bu)2SiF2
AUTHOR(S): Rempfer, Beate; Oberhammer, Heinz; Auner,
Norbert
CORPORATE SOURCE: Inst. Phys. Theor. Chem., Univ. Tuebingen, Tuebingen,
7400, Fed. Rep. Ger.
SOURCE: Journal of the American Chemical Society (1986),
108(14), 3893-7
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 105:24331
AB Gas-phase structures (rg) of the methylfluorosilanes Me4-nSiFn (n = 1-3)
and of di-tert-butyldifluorosilane have been determined by electron
diffraction. In the case of MeSiF3 the **microwave** rotational
constant was included in the structure anal. In the methylfluorosilane
series a steady decrease of Si-F and Si-C bond lengths is observed with
increasing fluorination. These trends are rationalized by increasing
polar contributions and contraction of the Si valence shell. Ab initio
calcns. for SiF4 indicate that (p-d) π bonding is negligible.
Substitution of the Me groups in Me2SiF2 by Me3C groups leads to
lengthening of Si-F and Si-C bonds and strong variations in the Si bond
angles.
CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22

=>

This Page Blank (uspto)